FOUNDED IN 1856

RAILWAY AGE

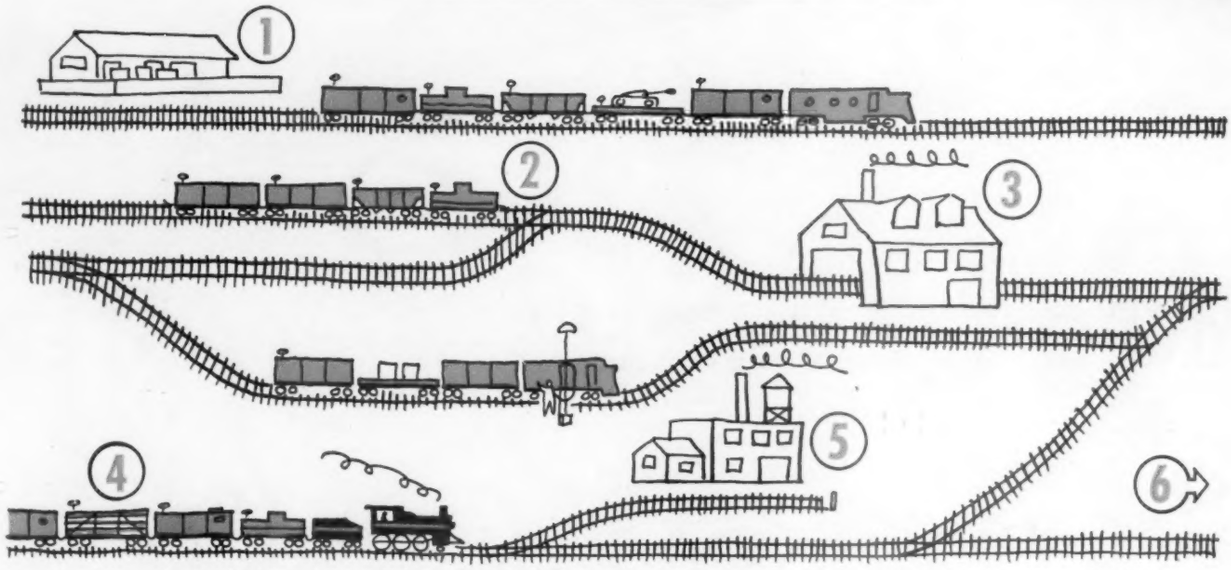
THE STANDARD RAILROAD WEEKLY FOR ALMOST A CENTURY

5 Copy 5 10 51

APRIL 23, 1951

Just where will "Roller Freight" cut operating costs?

All along the line!



1. **AT TERMINALS.** With "Roller Freight"—freight trains mounted on Timken® tapered roller bearings—90% fewer man-hours are needed for terminal inspection! Lubricant, too, is saved.

2. **IN THE YARDS.** "Roller Freight" makes more cars available because cars get where they're going faster and spend less time in repair shops. Humping operations cannot displace parts of the Timken bearing.

3. **IN THE SHOP.** Timken bearings cut repair bills by reducing wear and tear on draft gear and other parts. Impact damage from "serial starting" jolts can be eliminated.

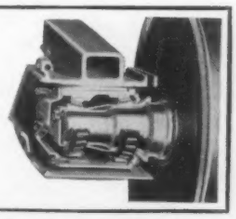
4. **ON THE ROAD.** Timken bearings practically eliminate "hot boxes" and the resulting expense and delays. Timken roller bearings minimize friction, permit tighter closures to retain lubricant. And there's no waste to "grab".

5. **AT DESTINATIONS.** "Roller Freight" reduces lading damage claims by making smoother starts and stops possible. Timken bearings cut starting resistance 88%.

6. **ANYWHERE.** You can schedule full-length trains even in cold weather. Timken bearings reduce starting friction to a minimum.

MORE BUSINESS, TOO! "Roller Freight" will do more than cut your operating costs. It will give you a big advantage with shippers in going after a greater share of tomorrow's freight tonnage. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

PRICE CUT 20%
The Timken Company's cartridge journal box and bearing assembly for freight cars now costs 20% less than applications of five years ago.

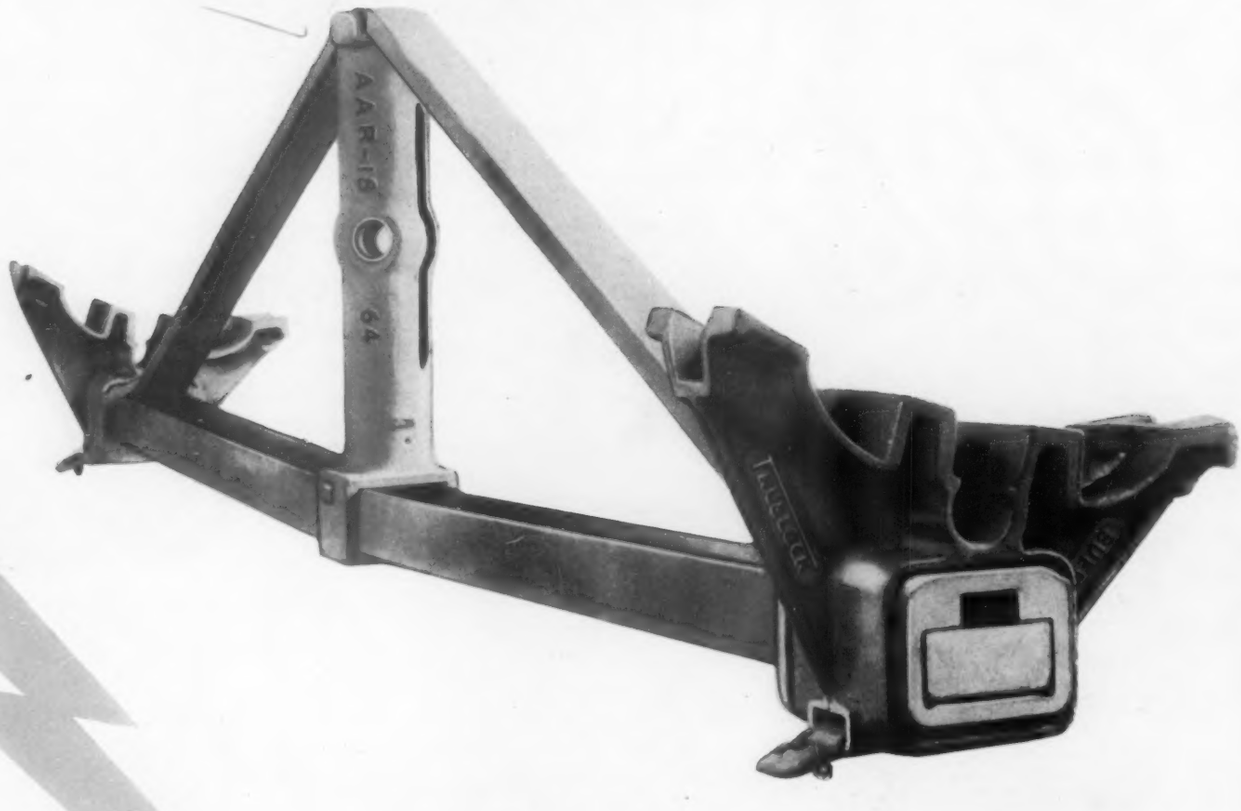


TIMKEN *TAPERED ROLLER BEARINGS*

TRADE-MARK REG. U. S. PAT. OFF.

NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◎ AND THRUST →◎← LOADS OR ANY COMBINATION →◎←

TRUSLOCK



MAKES FAST FREIGHT—FASTER!

Promises are fine—but its performance that counts. A million dollars worth of motive power can't move a bad order car, and brake head troubles are no respecters of fast, top-priority lading. TRUSLOCK gives you the freight car brake head you've always wanted—the head with the "quick-change-right-at-the-car"—the kind of brake head that's helped maintain the high availability of your passenger cars for over fifty years. Switch to TRUSLOCK—and watch those hot-shots really roll.

BUFFALO BREAKE BEAM CO. NEW YORK

*Registered Trade Mark for Buffalo Brake Beam Company's new No. 18 hangered type brake beam

Bethlehem produced its first wrought-steel railway wheels more than a quarter-century ago, and they were good wheels. It goes without saying that those made in subsequent years were better still as refinements in steelmaking, forging, treating, and other techniques were developed.

Today, when you specify Bethlehem one-wear freight wheels or the multiple-wear types for passenger and locomotive duty, you are purchasing wheels that will serve you more faithfully than ever before. They are built to carry peak loads at top speeds for many, many thousands of miles; to keep rolling, keep working, long after they have justified their purchase price. Whenever you install Bethlehem wrought-steel wheels, you can do so with the confidence that they are unsurpassed anywhere.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation.

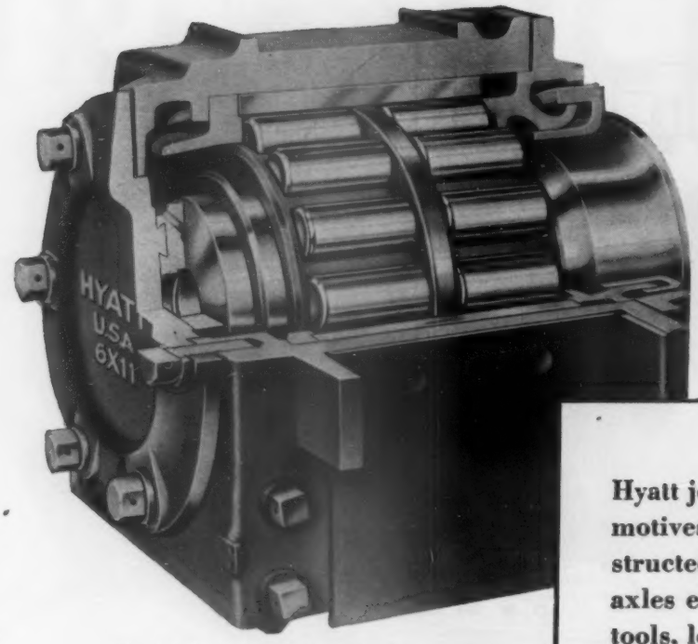
BETHLEHEM WROUGHT-STEEL WHEELS

COMPANIONS TO BETHLEHEM FORGED-STEEL AXLES

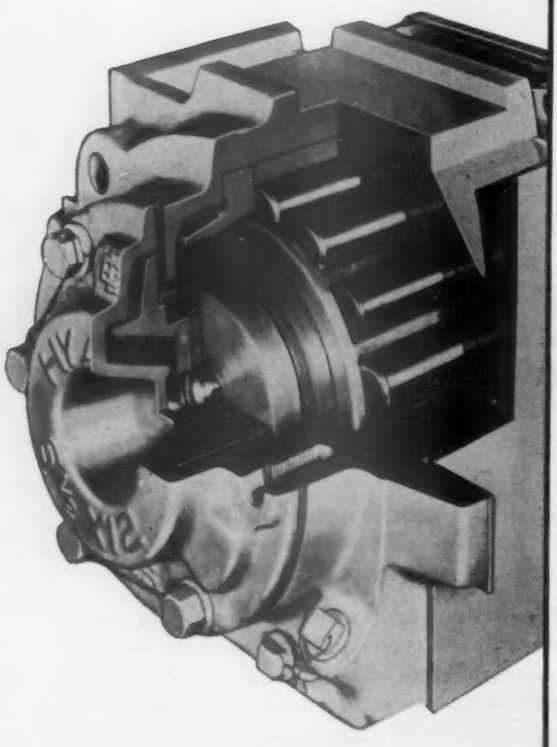
FREIGHT • PASSENGER • DIESEL

BETHLEHEM STEEL

"It's easier with HYATTS"



Hyatt Roller Bearing Journal Box for Passenger Cars



Hyatt Roller Bearing Journal Box for Diesel Locomotives

Hyatt journal boxes for both diesel locomotives and passenger cars are constructed so that they can be stripped from axles easily and quickly without special tools, leaving only inner races and water guards in place.

All journal box and bearing parts are then readily accessible for cleaning and inspection. The bearing itself can be disassembled right down to the individual rollers.

For complete axle inspection, the inner race may be removed quickly and safely with a Hyatt induction heater. This method of removing inner races virtually eliminates all danger of galling axles.

When Hyatt journal boxes are used, your regular mechanics can do all the necessary work. There are no tricky adjustments and no "experts" required. Regular shop personnel can be quickly trained to handle most requirements. Write for our journal box visualizer and see for yourself why Hyatts are easier to maintain.

Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

HYATT ROLLER BEARING JOURNAL BOXES

Vol. 130, No. 16 April 23, 1951

RAILWAY AGE

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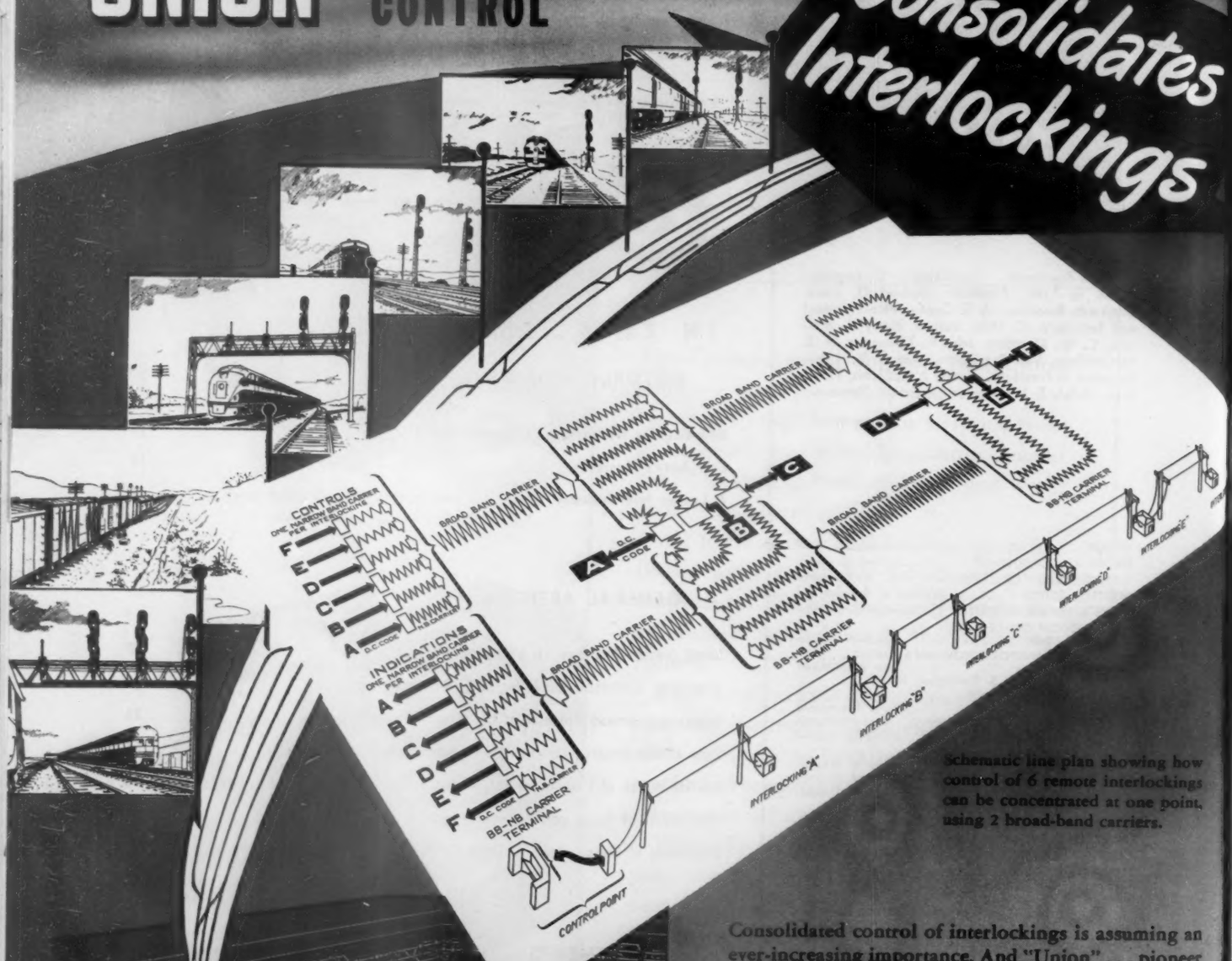
"UNION" BROAD-BAND, NARROW-BAND CODED CARRIER CONTROL

Consolidates Interlockings



Schematic line plan showing how control of 6 remote interlockings can be concentrated at one point, using 2 broad-band carriers.

Consolidated control of interlockings is assuming an ever-increasing importance. And "Union" . . . pioneer in the use of carrier frequencies to control signal systems . . . has continuously advanced the development of Coded Carrier Control to meet new and diversified demands.

"Union" Broad-Band, Narrow-Band Coded Carrier Control, for example, is especially designed to concentrate the control of an extensive series of remote interlockings at one point, such as division headquarters. It utilizes narrow-band frequencies—modulating broad-band carriers—in such a manner that the controls and indications can be confined to a relatively narrow range of frequencies handled by a few broad-band carriers.

So when you plan your interlocking consolidations, call in our engineers . . . let them show you how you can obtain greater efficiency and save money . . . with "Union" B-B—N-B Coded Carrier Control.

UNION SWITCH & SIGNAL COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

WEEK AT A GLANCE

CHANGING PROPORTIONS: Unpalatable, but necessary, reading for passenger traffic officers are the figures on relative air and first-class rail passenger-miles contained in the latest "Monthly Comment" of the I.C.C.'s Bureau of Transport Economics and Statistics—which is summarized in the news section (page 34). The "Comment," briefly, shows that, while first-class rail passenger-miles were a little less than holding their own, between 1949 and 1950, air passenger-miles were gaining by more than 18 per cent. In other words, the air lines continued in 1950 to increase their rapidly growing proportion of the total "luxury" travel business—while the railroads' percentage of that business was smaller. Freight traffic officers, too, might well look sharply at the "Comment's" analysis of relative movement of coal by rail, truck and water. Other features of the "Comment" are an interesting comparison of relative changes in rates and revenue per ton-mile of freight handled in this country and in Great Britain—which provides additional information against "nationalization"—and a comparison of car-mile revenues and expenses.

SMALL DIESEL SHOP: Changeover from steam to diesel power by a small road involves not only the same problems of running maintenance and heavy repair as on large roads, but the additional problem of providing facilities in keeping with economical performance of necessary work on the relatively small number of diesels usually involved. How one such road—the Toledo Terminal—solved this problem by building an extension of its existing machine shop to serve as a diesel repair shop is told in the illustrated feature article which begins on page 18.

SIMPLIFIED AUTOMATIC BLOCK: Starting on page 21 is a description of a simplified automatic block signal system installed by the Chicago, Rock Island & Pacific on 103 miles of single track handling only 10 scheduled trains a day. The project includes staggered intermediate signals designed to eliminate station overlaps.

IN THE SPOTLIGHT: Rock Island orders 45 diesels.—Appointment of M. G. McInnes as Erie vice-president, operations and maintenance, heads up long list of promotions resulting from death of R. C. Randall.—New York Railroad Club announces third Roy V. Wright prize essay contest.—Norfolk & Western holds 26th annual Better Service Conference.—D.&R.G.W. inquires for 1,000 70-ton gondola cars.—Railway Express Agency wins I.C.C. approval of interim rate increase.—Senate confirms Rogers for new term on I.C.C.—Wabash buys dome-parlor-lounge car from Pullman to handle increasing business on "Blue Bird."—Long Island finally gets fare increase.—Canadian National develops anti-corrosion compound for reefers.—Same company's 1951 budget provides for 6,000 freight cars and 20 diesels.—New freight car orders total 9,125 units.—New York & Long Branch to replace Matawan trestle with earth fill.—Edward M. Thomas, Nickel Plate vice-president, dies.—B.&O., N.Y.C. to undertake major expansion of ore-handling facilities at Toledo docks.—D.&R.G.W. postpones proposed financing.—*Railway Age* wins Freedoms Foundation award.—Crosser bill would liberalize Railroad Retirement Act.—D.P.A. allocates steel for production of about 10,000 freight cars in June.

BETTER STORES CONTROL: On pages 24 and 25, A. G. Denham, general storekeeper of the Frisco, outlines his company's newly installed visible record system for diesel locomotive parts. The system was, Mr. Denham says, easily installed and can be easily expanded. It has, he adds, increased clerical efficiency, established a tighter control over inventory, and enabled his department to render better service to the using departments.

"AVERAGE" SUPERINTENDENT: As this paper has frequently declared in its editorial pages, the division superintendent is a "key" man—quite possibly *the* key man—in the railroad industry. What, then, is the "average" superintendent like? How old is he? What is his educational background? What are the trends in selection of superintendents? Our leading editorial (page 15) undertakes to answer these questions by analysis of available information concerning men actually holding such jobs.

TAXES—TAXES—TAXES! "The peacetime squeeze of the tax collector has created a tax burden which is already beyond the point of diminishing returns in far too many instances, and the burden falling on the railroad industry is at or beyond that point of peril. . . . We can only hope that the tax collector ponders well the seriousness of the present situation. Otherwise, to all groups interested in railroads, ranging from owners of securities to the taxing authorities, the consequences may well ultimately prove disastrous." Those are the major conclusions reached by one of the country's outstanding railroad analysts in a recent study of the burden of taxation on Class I railroads. They are set forth in more detail, with supporting facts and figures, in a summary of his study, which starts on page 30.

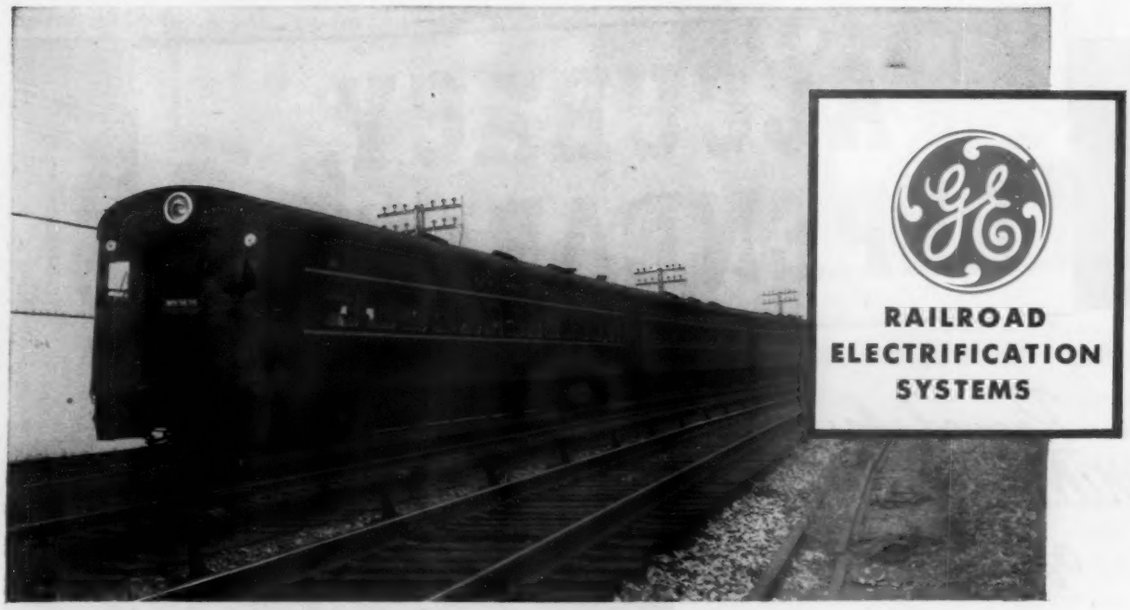
SERVICE WRACK: What goes on inside a diesel-electric locomotive is important from both maintenance and operating standpoints to mechanical, engineering and operating men. Some of the things that take place, as a result of "service wrack"—electro-magnetic relationships, centrifugal force, mechanical shock or rotational stress—are discussed by A. H. Candee, of the Westinghouse Electric Corporation, in the first installment of a two-part article, which begins on page 26. The second part of Mr. Candee's discussion, which is also the subject of an editorial in this issue, will appear in the *Railway Age* of April 30.

V.P.'s OR STENOS, THEY ALL PRAISE THE

"A dream come true!" That's what hundreds of enthusiastic New York suburbanites called the exciting new all-electric commuting coaches when placed in service by the N. Y. Central Railroad.

The first of 100 such cars to be delivered, they have accommodations and riding characteristics that set a new high in passenger travel comfort for work-weary commuters! Modern, high-efficiency General Electric traction motors cut vibration and road shock and G-E controls assure fast, smooth starting and maximum operating flexibility.

Equipment such as this is typical of how G-E experience in electrification helps meet the advanced requirements of present-day railroad operations. Call your G-E representative today! He'll be glad to explain how G-E's experience in the design and manufacture of a wide range of electrical apparatus helps improve service and cut costs. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*



The New York Central's new, smooth-riding MU coaches have become so popular with travel-wise Bronx and Westchester commuters that more and more of them are going out of their way to "catch" trains made up of these cars. Features that make riders enthusiastic are spaciousness, quietness, comfortable air conditioning, soft fluorescent lighting, big picture windows, and smooth starting and stopping. Dependable G-E apparatus is what keeps the necessary equipment operating satisfactorily to make loyal and contented commuters.

COMMUTER'S "DREAM TRAIN!"

N. Y. CENTRAL MU COACHES, *ELECTRIFIED BY GENERAL ELECTRIC*, SET NEW STANDARDS IN PASSENGER COMFORT, OPERATING EFFICIENCY

PRAISE FROM "VEEP"— Fred E. Adams, who takes this train at Scarborough, says, "It reminds me of the Twentieth Century and rides like a modern Pullman . . . very relaxing and comfortable. I like especially the quietness, attractive decoration, and air conditioning."

PRAISE FROM STENO— Charlotte Tanner, daily two-way rider from Hartsdale, says, "It's just wonderful! Why it starts and stops so smoothly I can do a crossword puzzle without a jiggle. I like the restful colors, too, and the wide windows and seats."

PRAISE FROM SALESMAN— John W. Fox, Tarrytown commuter, says, "I like it very much. The fluorescent lighting makes it easy to read my paper and the ventilating system clears the smoke out quickly. I get this train both ways every day because I feel fresher when I get to work and it sort of revives me at night."

GENERAL ELECTRIC

152-14

ACCURACY, DEPENDABILITY

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The accuracy and dependability of BARCO RECORDERS are unquestioned. A typical user* reports accuracy within 2% at 100 MPH after a million miles of service! This is the kind of performance you want and one reason why you should INSIST ON GETTING BARCO RECORDERS.

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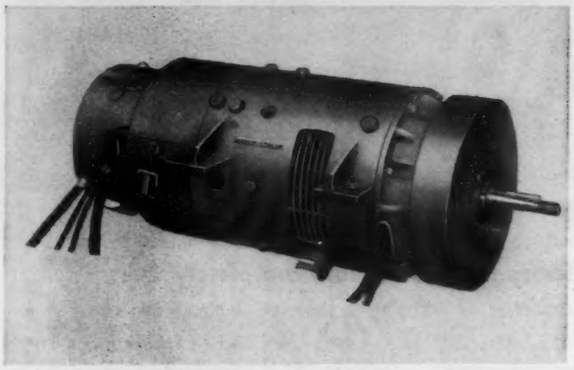
WHICH UNDERCAR UNIT IS BEST FOR YOU?

● **THE G-E DIESEL-ELECTRIC UNDERCAR POWER PLANT** is a self-contained, a-c power plant. It's "swing out" mounting allows for quick servicing. Independent operation eliminates drag on the locomotive.

Plant consists of a 6-cylinder, 48-hp diesel engine coupled to an a-c generator with a 27-30 kw net output. It produces 220 volts, 60 cycle, 3 phase power.



● **G-E'S AXLE-DRIVEN MOTOR GENERATOR** is a conventional power unit popular with some of the nation's finest railroads. Over 1600 are now in service.

The axle-driven motor generator is a d-c unit assuring ample power for air-conditioning, lighting, water-cooling, and other electrical loads. Adequate reserve power is also provided to keep batteries up during all normal train operations. It is rated for 25, 30, or 35 kw and for operation on 32, 64 and 114-volt systems.

● **THE AMPLIDYNE BOOSTER INVERTER** efficiently converts from d-c to 230 volt, single phase, 60 cycle a-c. It supplies smooth power for fluorescent lights, blower and condenser motors, booster and exhaust fan motors and other devices to increase passenger comfort. Can be used with the axle-driven motor generator or with any other d-c source. Rating is 5 or 6.4 kw for 64 and 114-volt d-c systems. General Electric Company, Schenectady 5, N. Y.

No matter which of these units best suits your cars, you are assured

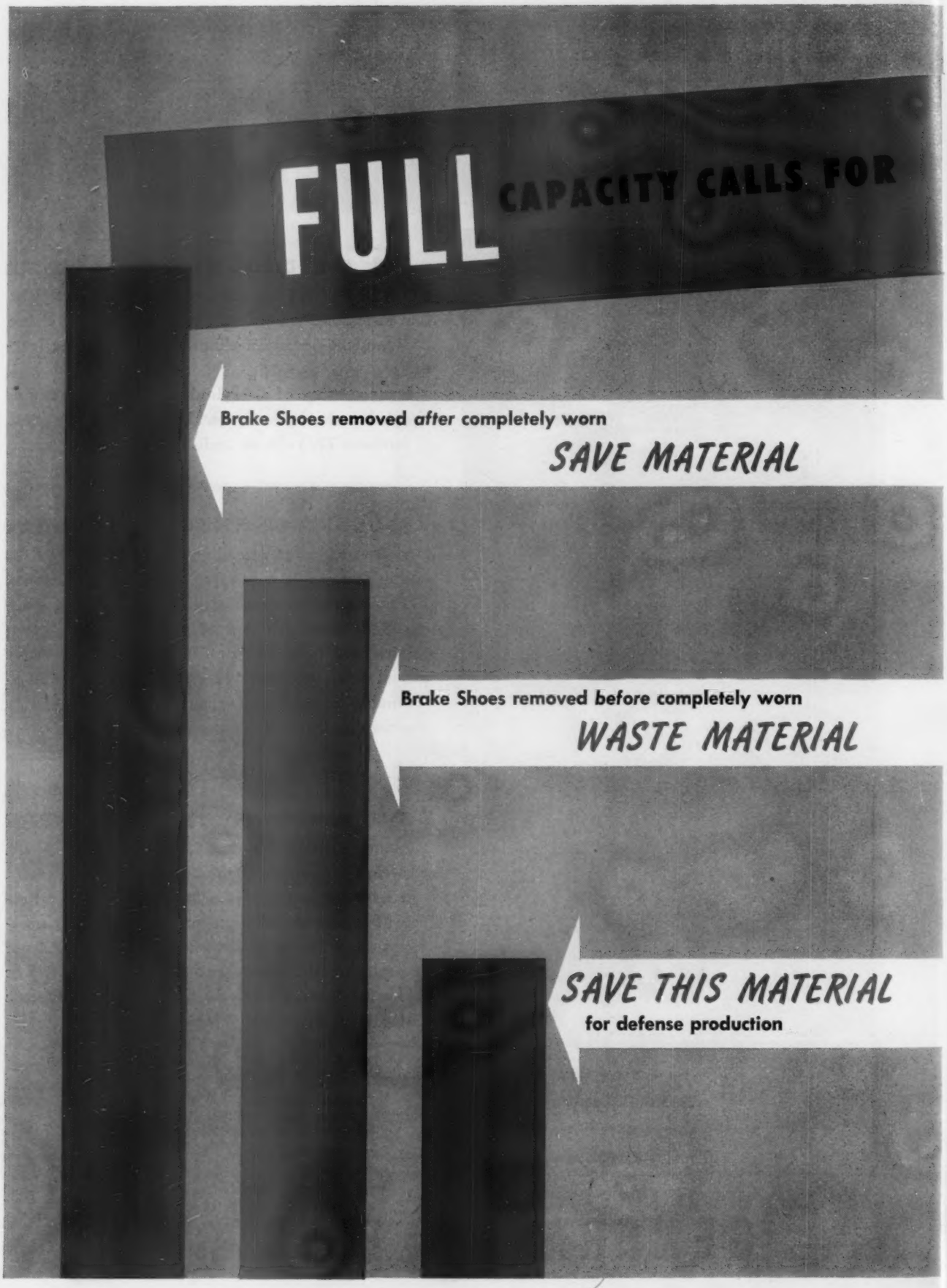
Economical operation **Dependability**

Low maintenance costs **Simplicity of operation**

Consult your nearest G-E sales office for further details.

GENERAL ELECTRIC

122-12


FULL CAPACITY CALLS FOR
Brake Shoes removed *after* completely worn
SAVE MATERIAL
Brake Shoes removed *before* completely worn
WASTE MATERIAL
SAVE THIS MATERIAL
for defense production

FULL USE OF EXISTING MATERIAL

● Production and distribution at full capacity to meet combined civilian and military needs means more intensive service for America's railroads . . . calls for full utilization of all available facilities and materials.

That's why today it becomes increasingly important that you get every bit of service out of your brake shoes. To remove them while they are only partially worn is wasteful of both material and labor. American Brake Shoe Company, 230 Park Avenue, New York 17, N. Y.

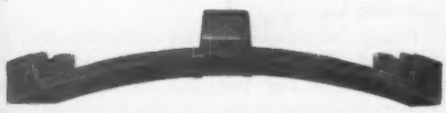
WEAR ALL BRAKE SHOES TO THE

***LIMIT-OF-WEAR* MARK**

Limit-of-wear is clearly visible. Be sure to wear to this mark.

Do not remove partially worn brake shoes. This shoe still has many miles of service that are being thrown away.

Do not remove cracked shoes until they have been worn to the limit-of-wear mark. The steel back holds the wearable metal in its place for full-wear duty.



HERE IS THE WAY A COMPLETELY WORN SHOE SHOULD LOOK. It has been worn to the limit-of-wear mark. No material or labor has been wasted.

AMERICAN Brake Shoe COMPANY

BRAKE SHOE AND CASTINGS DIVISION

9091

There's HIGH SPEED *in* MAINTENANCE, *too*

—with AAR Solid Journal Bearings!

WITH AAR SOLID BEARING CARS, you can highball safely along at maximum permissible track and axle speeds. There are no speed restrictions whatever on these dependable bearings.

But you've got to keep cars on the line, too. And that's where AAR standard journal bearings really shine. *There's never any shopping for bearing maintenance required!* Journal inspection simply means lifting the lid. Replacement's just a matter of jacking the "box"—a 10-minute job for a one-man crew. No costly equipment or labor—no excessive standby inventories—no extra delays for replacing trucks.

It all adds up to more time "on line"—ready for the business of moving goods. And that's just one of the ways AAR solid journal bearings are contributing to economical railroad operation.

MAGNUS METAL CORPORATION
Subsidiary of NATIONAL LEAD COMPANY

Be sure to get your free copy of the

facts

See why America's Railroads have standardized on Solid Bearings

HERE'S A PARTIAL LIST OF CONTENTS:

. . . Why Solid Bearings are UNRESTRICTED AS TO SPEED AND LOAD.

. . . The facts about FRICTION—Solid Bearings require minimum power over a whole run.

. . . What LIGHTER WEIGHT of Solid Bearings really means in practical train operation.

. . . How Solid Bearings increase the ton-miles potential AT MINIMUM COST.

A free copy is yours on request. Just write a post card or letter to Magnus Metal Corporation, 111 Broadway, New York 6, N. Y.

HOW DESCRIBE THE "AVERAGE SUPERINTENDENT"?

In order to answer, in part, the above question we took the 1949 edition of "Who's Who in Railroading" and tabulated the age and educational background of all the division superintendents listed in that book, where this biographical information was given (or readily obtainable from other sources). By this process we got these data on 379 superintendents of United States and Canadian railways, which were totaled and averaged for the group as a whole and for individual large systems. The (arithmetic) average age of these superintendents was 52.6 years. Of the total number, 93, or approximately 25 per cent, had some formal college education (not counting correspondence courses, summer sessions, or "business colleges" not of full academic grade). In other words, three-fourths of the superintendents were in the "self-educated" category. Of the 93 individuals with formal academic backgrounds, approximately 70 per cent had received their education in some branch of engineering or technology—the remaining 30 per cent having taken straight academic courses, law, or business administration.

Compared with 1940 Data

In the belief that it would be interesting to learn whether there had been any material change in the average age or educational backgrounds over a period of ten years, we made a similar tabulation from the 1940 edition of "Who's Who in Railroading," getting data on 345 superintendents. The 1940 and 1949 characteristics show the following comparisons:

	1940	1949
No. Enumerated	345	379
Per cent Age 30-39	2.6	4.5
" " " 40-49	19.7	23.5
" " " 50-59	51.3	39.8
" " " 60-69	24.4	30.6
" " " over 70	2.0	1.6
Arithmetic Mean Age	54.8	52.6
Per cent College Educated	25.0	25.0
Per cent Tech. of Total College	63.0	70.0

The decline in the average age by more than two years is certainly significant, as perhaps also is the greater emphasis on engineering education where college backgrounds are involved. The sharp increase in the number who are under 50 years of age is noteworthy, while the lesser increase in the above-60 group also merits some attention.

Whether the changes noted are for the better or otherwise will be a matter of opinion, depending upon whether the more desirable emphasis lies with the vigor and readiness for innovation, usually associated with youth, or the wisdom which is more often found in conjunction with long experience. The listing of superintendents in "Who's Who" is not 100 per cent complete, of course, nor are the requisite data given for all individuals. Nevertheless, the selection is large enough so that it is reasonably safe to assume that it is representative—except, perhaps, for the educational information. Where no formal higher education is specifically shown, none is assumed—which involves the probability of some

error, although scarcely enough, presumably, to vitiate the percentages.

The comparisons by individual railroads are as interesting and, perhaps, just as significant as those for the whole group. For example, there are 26 large railroads in the United States and Canada, each with five or more superintendents enumerated in the 1949 "Who's Who." Of these railroads, from 1940 to 1949, the average age of superintendents rose on 11 of them, declined on 12, and remained unchanged on 3. Of these 26 railroads, the company with the lowest average age had 50 as that average, while on the road with the highest average age, the average was 62. From 1940 to 1949, the average age of superintendents on one large road rose six years (i.e., on that road of the 26 which had the largest increase in the average)—while, on the road with the largest decline in the average age, the decline was seven years.

Some comparisons are invidious and none such will be made here. It is worthy of note, however, that there are at least two large railroads on this continent which are, apparently, making it their predominant practice to promote comparatively young men (i.e., in their thirties or early forties) to superintendencies, and who are evidently laying great emphasis on engineering education as a qualification for these positions. The practice of these two roads, as it appears to be revealed in the biographical data, stands out in marked contrast to the general practice, which—while without prejudice to *some* very young men—leans in the main to those of more mature years; and seems to have established no particular educational requirements for these positions.

Probably the Key Job

Further quantitative study of this biographical information would doubtless uncover additional indication of trends in management policy toward the superintendency—which is certainly a "key" job on the railroads; indeed, quite likely, *the* key job. The superintendent is in the midway position between the rank-and-file and top management. He is "as far up" in the managerial scale as most employees have close personal acquaintance. At the same time, he is not infrequently "as far down" as top management on a large railroad is able to go in regular contact with the supervision. In the current distressing tendency, visible in many places, of direct supervision to abdicate from management and throw its lot with organized labor, the superintendent is in the "spot" of primary importance. If he himself is thoroughly informed regarding industry problems and imbued with top management's point of view, he can be of more help than anybody else in keeping the supervision informed and loyal—that is, of course, if the superintendent is consulted in the formation of top management policies which affect the supervision.

In sum, the superintendent is pretty much the bellwether of railroad management at the grass roots. There can scarcely be too much study given to trends in the quality of personnel occupying this position—with prompt attention to fortifying those which seem healthy and rectifying those that plainly are not. The paint people have a slogan to the effect that "save the surface and you save all." By a closely parallel analogy it could be said with almost equal truth: "If the quality and morale of your superintendents are high, quite likely your whole railroad will be doing all right."

If our readers—especially the superintendents themselves or those who have been or hope to be superintendents—have information or opinions on this highly important subject, we should be glad to have them. There is no matter of more vital bearing on the railroads' future, and it is not discussed as much as it might profitably be.

EVERYBODY'S BUSINESS

Diesel-electric locomotives are commonly looked upon as the business of the mechanical department. Actually, they are the business of all departments. True, like steam power, they are maintained by the mechanical department, but good maintenance is not their only requirement. The operating department has always been able to maltreat steam locomotives, but its opportunities in this direction are greatly augmented with a diesel. When a steam locomotive is overloaded, it lies down and quits without suffering physical damage. When a diesel is overloaded, motor temperatures may rise to a point where serious damage is done—damage, unfortunately, which may not become evident until long after it was suffered. Wheels can slip for miles without the operator in the cab being aware of the condition and, in some cases, wheel speeds rise to values which cause damage to the armature.

Responsibility does not end with the operating department. The diesel has fallen heir to a valuable heritage from the steam locomotive in the form of a heavy, rigid track structure. This was made necessary by high axle loadings and heavy oscillating forces. Diesel axle weights are lower, but poor track surface can cause slipping of individual pairs of wheels at high speeds, and the injury which can be done to traction motors and other locomotive parts by rough track is only partially understood.

The electrical department has a primary responsibility in this situation. Those parts of a diesel which are least understood are electrical. The diesels have introduced an enormous amount of electrical equipment into railroad service. Much of this must be looked after by men with only mechanical experience, and there is literally a crying need for information and education. Even the well-ordered repair shops are still going through important changes in the process of developing improved practices. Unquestionably, diesel operating and repair costs are still subject to considerable reduction.

In a two-part article beginning in this issue, "Service Wrack of Locomotive Electrical Machinery" (page 26), the author takes the reader into the fundamental secrets of a diesel's electrical parts to show where and how the

forces which wrack a locomotive are developed. The drawings look almost as if they had been taken from a textbook on elementary electricity, but they apply specifically to the diesel locomotive and should serve to clear up a lot of things which are pretty foggy in the minds of many. Insofar as railroad men are concerned, the article deals with a subject which is everybody's business.

A LESSON FROM INDUSTRY

A representative of a large and successful industry was recently asked to what he attributed the remarkable results accomplished by this organization. He replied that one of the most important factors is the exceptionally high state of morale among supervisors and salaried personnel. Individual initiative, responsibility and delegation of authority are encouraged; self-improvement is stimulated; and achievement is recognized. In other words, a strong appeal is made to personal ambition and powerful incentives are provided to bring forth intensive effort.

How is this happy state of affairs brought into existence? Only as a result of unswerving persistence in carrying out a carefully calculated company policy over a period of years. One vital factor in implementing this policy is, of course, the setting up of minimum practicable records to develop essential information. In other words, existing personnel conditions must be known and thoroughly analyzed before any real improvement in these conditions can be effected. In the case of the reorganization mentioned, every supervisor is required to review the performance of salaried personnel reporting to him once each six months, and to present his comments and recommendations in a written report to the management.

This report covers the individual employee's production (quality and quantity), ability to plan and carry through his work, his cooperativeness and personal qualifications. The employee's work is reviewed on the basis of present performance and classified in one of the following five categories: outstanding, above average, average, below average, unsatisfactory. In the next session of the report, the supervisor is required to indicate which one of four actions he proposes for the employee and why. The four optional recommendations include: no change of job; transfer to another type of work; immediate promotion to (first choice) (second choice); release from employment. This report is made out and checked, not only by the supervisor—it must also be signed by the employee, who thus knows just where he stands with his boss; and he may append his own comments to the bottom of the report if he wishes.

Without exaggerating the merits of this plan, it obviously avoids losing sight of outstanding employees who might otherwise be overlooked; and it quickly gets the square pegs out of the round holes. It puts supervisors on the alert to develop competent subordinates, and advances all qualified personnel as fast as practicable. Can any one railroad boast of as effective and workable a system for developing and promoting its employees and supervisory staff? It may be said that railroads are large employers of labor, that working conditions are different, and that seniority rules preclude advancing people to larger responsibilities on merit alone.

As far as size is concerned, the organization which uses this system is national in scope and employs many thousands of people throughout the country. To the extent that seniority rules discourage initiative, prevent just recognition of exceptional performance and keep promising young men from entering railway service, they are definitely detrimental to the best interests both of railroads and the nation. But even where they have to be considered, they are seldom the sole factor on which supervisory promotions must be based. The knowledge of the comparative merits of candidates for promotion, possessed alike by the promoting officers and the candidates themselves, can scarcely fail to have a stimulating effect.

"PERHAPS IT'S A PREVIEW"

"Several thousand employees of the New York Central Railroad are to be laid off. The reasons given by the management for this action are that freight traffic has shrunk and that operating expenses and fixed charges exceeded first quarter revenues by $10 million.

"This may well be a special case, due to the nature of the railroad's traffic and the location of its lines. The company's announcement of its decision to reduce its working forces states that the rearmament program has not as yet produced important traffic for the system. This newspaper's inquiries show that railroad layoffs have not become general practice.

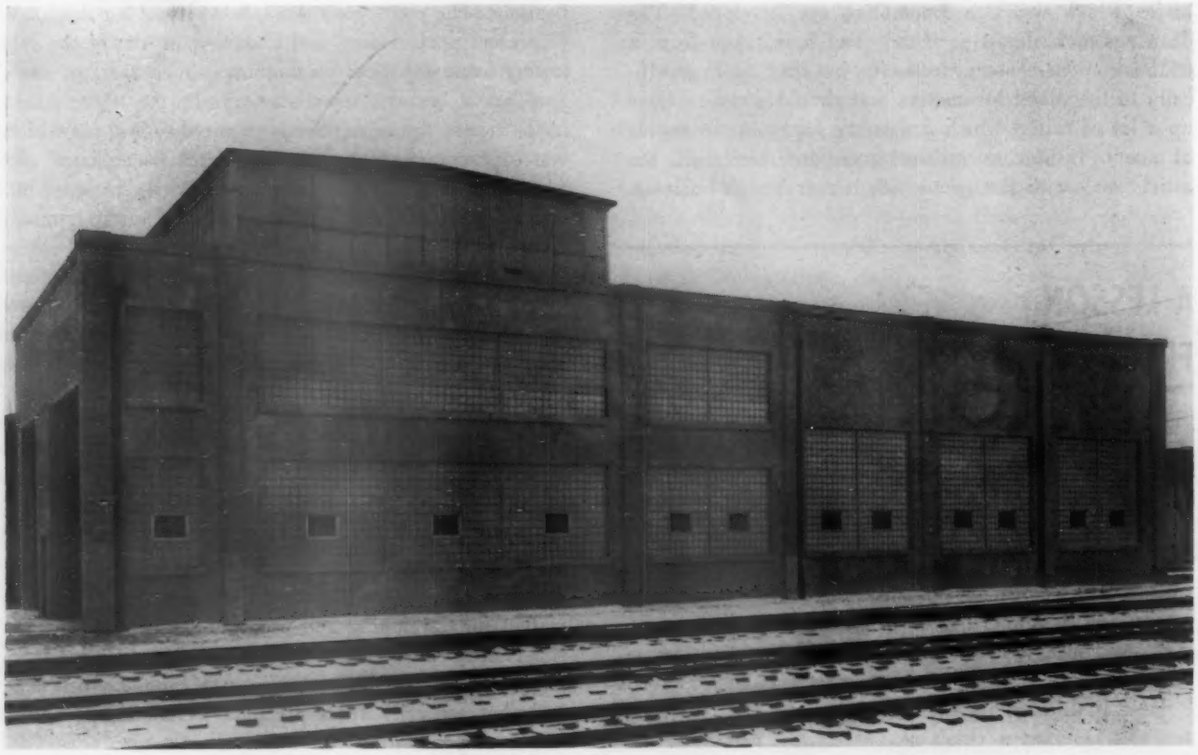
"But it is worth noting that, according to this company's statement, wage rates on the eastern railroads have increased by 130 per cent since 1939 and prices of materials and supplies are up 129 per cent, whereas over the same period freight rates are only 66 per cent and passenger fares but 41 per cent higher. For a time heavy and expanding traffic will enable a carrier to withstand such a distorted relation between prices for its services and the cost of rendering them. Generally speaking, that has been the case with the railroads during the past several years.

"It is the history of railroad operation, however, that when business recession comes revenue falls more rapidly than operating expenses can be reduced. Wages are a large component of total expenses and they prove relatively inflexible during even a protracted fall in traffic volume.

"There is no convincing evidence that the traffic shrinkage which the New York Central is now experiencing will long continue; the presumption is to the contrary. But the Central's experience, even if it prove temporary, must be regarded as a sort of preview of what will happen on all railroads if or when the traffic tide recedes and management, unable to lower a boom-raised wage level, has no other recourse than layoff of employees.

"If or when that happens, the implacable post-war drive of the railroad unions for always higher wage rates will have produced some unpleasant secondary consequences."

—*The Wall Street Journal, April 11, 1951.*



View of north side of the Toledo Terminal's new diesel repair building. Glass block was used freely in its construction

Small Diesel Shop Has All Essentials

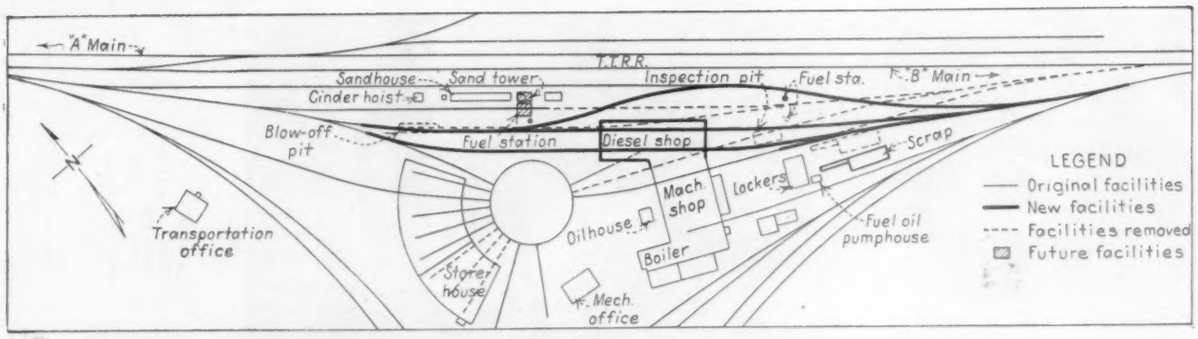
Now almost completely dieselized, the Toledo Terminal builds new facility to handle repairs to its new power

When changing over from steam to diesel power, roads like the Toledo Terminal are faced with the same problems involved in handling running maintenance and heavy repair of the new power as are larger roads, but have the additional problem of providing facilities in keeping with the limited scope of work which it is economical to perform on the relatively small number of diesels involved.

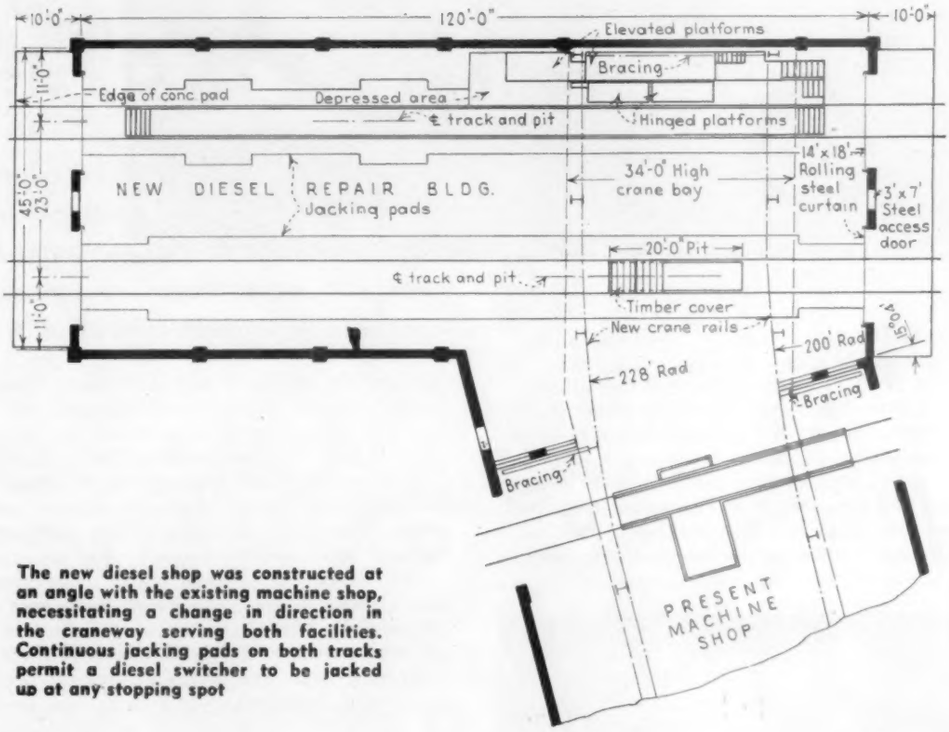
The Toledo Terminal, now almost completely dieselized, faced this situation; and after an analysis of the present enginehouse at its Boulevard shops at Toledo, Ohio, had shown that these facilities did not lend themselves to remodeling, it built an extension at the north end of an existing machine shop to serve as a diesel repair shop. The new structure incorporates the essentials necessary for maintenance and repair of the company's diesel switchers, while the former enginehouse provides sorely needed storehouse space.

The building extension is 45 ft. wide and 120 ft. long, inside dimensions, and has two through tracks each designed to accommodate two 1,000-hp. Alco switchers. The long dimension of the structure extends in an east-west direction. An attempt was made to keep construction costs to a minimum and yet provide adequate facilities and a pleasing appearance. The building was constructed of 12-in. concrete blocks, reinforced longitudinally with 24-in. intermediate and corner pilasters. Glass block was used freely not only to produce a modern exterior appearance but also to provide the lighting that is essential to safe and efficient repair operations. The roof is made up of 6-in. Flexicore prestressed concrete slabs, supported on steel trusses on about 19-ft. centers. Over the slabs there is 2 inches of insulation and a tar-and-gravel topping. The floor is an 8-in. reinforced concrete slab.

A high cupola was built over a crane bay near the east end of the new addition. The sides of this cupola



Showing the location of the new diesel shop and related facilities



The new diesel shop was constructed at an angle with the existing machine shop, necessitating a change in direction in the craneway serving both facilities. Continuous jacking pads on both tracks permit a diesel switcher to be jacked up at any stopping spot

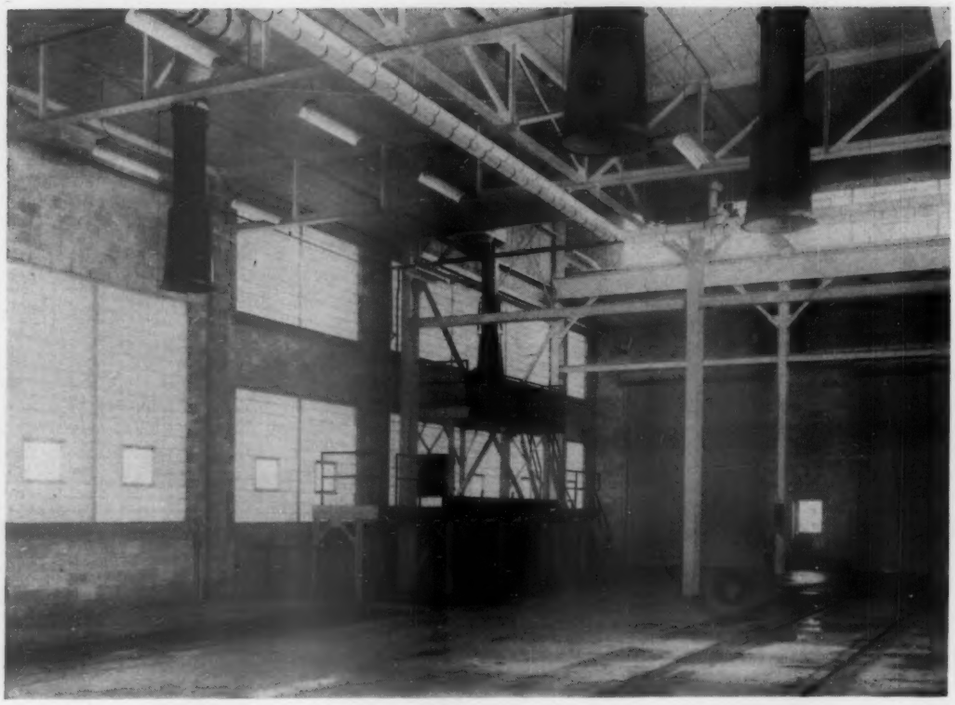
are comprised of corrugated Transite siding fitted with vented sash, while the roof is built up of corrugated Transite roofing sheets topped with insulation and a tar-and-gravel surface. The siding and the slightly sloping roof of the cupola make it blend in well with the concrete-block and flat-roof construction of the main portion of the building.

Curve in Crane Runway

It was deemed advisable to tie the new diesel shop into the existing machine shop via a common overhead craneway. This posed a problem, because the new building addition was erected at an angle with the existing shop building to permit the two through tracks to be parallel with the main tracks. Thus a change of direction of about 15 degrees was necessitated in the crane runway. This was accomplished by introducing a curve in the craneway rails. These rails are sufficiently elevated to provide a 25-ft. clearance beneath the hooks of a 25-ton crane and a 5-ton auxiliary crane.

The southerly one of the two through tracks is for handling heavy repairs. The foundation for the entire length of this track is designed as a continuous jacking pad so that, by means of four portable electric jacks, a locomotive can be jacked up wherever it may be stopped. A pit, 20 ft. long and 4 ft. deep, was constructed between the rails of this track underneath the crane bay for the repair of trucks. The rails of this track, of 100-lb. section, are welded to 8-in. wide-flange 31-lb. beams 7 ft. long, which are embedded transversely in the reinforced concrete jacking pad at 4-ft. 6-in. centers. These rails are laid in longitudinal slots, 13 in. wide, in the concrete; the slots were later filled with mastic.

The northerly track is designed for light repairs, continuous maintenance and inspection of the diesel switchers. It has a continuous pit, 48 in. deep, for its entire length in the building, except for 7 ft. at each end. The

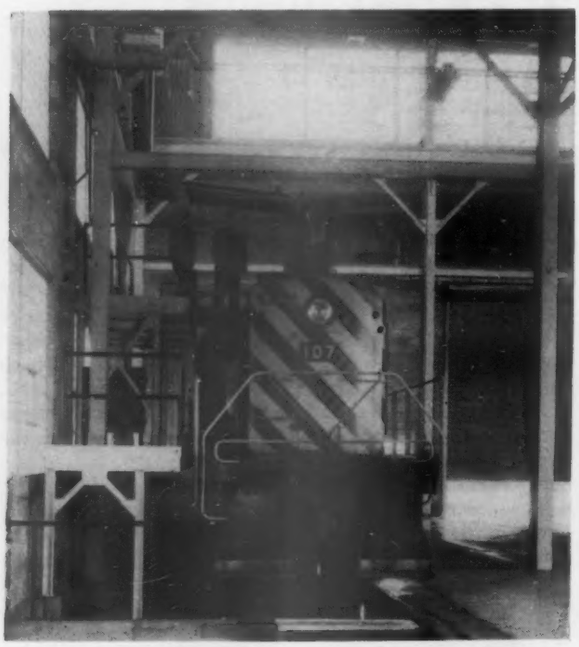


Diesel switchers can enter at either end of the shop through rolling steel doors. The adjustable exhaust hoods permit testing of engines and work on locomotives headed in either direction

sidewalls of the pit were constructed extra thick to serve also as jacking pads. For a portion of the length of this track on its north side, are a depressed floor and elevated maintenance platforms at two levels, each of which has a hinged apron. One working platform is at locomotive floor level and the other is at locomotive roof level. The depressed floor level is 3 ft. below top of rail.

The rails in the northerly track are of 152-lb. section and are also welded to 8-in. wide-flange beams embedded in the concrete, except where the north rail is supported on steel columns to give access to the pit from the depressed floor area. Locomotives headed in either direction can be serviced and repaired on this track. Adjustable exhaust hoods are so located as to accommodate diesels headed in either direction. These dissipate the gases through roof ventilators.

An outstanding feature of the floor plan is that an abundance of level and clear floor area is provided throughout. This allows use of an industrial crane truck at any location in the shop, while still allowing adequate depressed floor area and platforms for periodic maintenance and inspection.



The depressed floor and the two elevated platform levels give ready access for working on any part of the locomotives

Cost 50¢ per Cubic Foot

The building is heated by three blast-type unit heaters supplied with steam from an existing boiler in the machine shop. Natural lighting of the interior is augmented by four banks of fluorescent ceiling lights. The interior was painted with an industrial green to make it both pleasing and bright, while the exterior was given a coat of waterproofing cement paint.

The Toledo Terminal believes that the arrangement constructed in conjunction with the existing machine shop provides a very complete service for the repair of diesels at an extremely low cost. The complete cost ran about $14 per square foot of floor area and about $0.50 per cubic foot of space.

General direction over execution of the project was exercised by Ray Stephens, engineer maintenance of way, in collaboration with H. G. Dugan, superintendent of operations and motive power for the Toledo Terminal. Final detail plans and specifications were prepared by Sanborn, Steketee & Associates, consulting engineers at Toledo. The general contractor was the Henry J. Spieker Company, Toledo.

Simplified Automatic Block For Light Traffic

On 103 miles of single track, handling ten scheduled trains daily, the Rock Island has installed station - to - station automatic block, an improvement being staggered intermediates to eliminate station overlaps

Typical head-block signal location at a siding switch

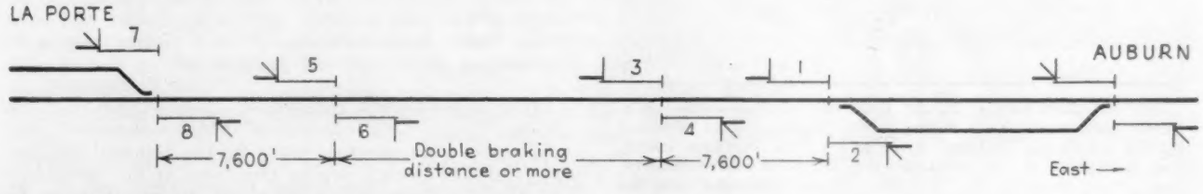
The Chicago, Rock Island & Pacific has recently completed an interesting installation of automatic block signaling on 103 miles of single track between Vinton, Iowa, and Manly. This is a connecting line which is a part of a through route between Chicago and St. Paul, as well as between St. Louis and St. Paul. The "Zephyr-Rocket," a fast passenger train, is operated each way daily, as is one local passenger train. The schedules include two time freights each way daily and a local freight each way daily except Sunday. With extra trains, about 10 to 12 trains are operated daily.

No signaling had been in service previously on this 103-mile line until, primarily as safety protection, the management authorized expenditure for a simplified form of automatic block. Within the past several years, the Rock Island has installed simplified signaling in which the block extends from station-to-station with no provision for following train movements in such a block. On these earlier projects, overlaps extended into siding limits. This feature required that a train, when holding the main line for a meet, must not occupy the overlap. The new feature of the 1950 project, between Vinton and Manly, is that intermediate signals were installed so that opposing intermediates are spaced twice train braking distance. With this protection between sidings, no overlaps are required within station limits, so a train which is holding the main track for a meet can pull on down and occupy the main track within siding limits. Another advantage is that local freights can make switching moves in station limits without holding the signals at Stop to the next station.

The diagram shows the signaling arrangement between LaPorte and Auburn, this being typical. The signals are actually numbered according to miles, but in this diagram single-digit numbers are used to expedite the explanation. The station-leaving signals, such as Signal 1, govern from station to station, i.e., Auburn to La Porte. Such signals display only two aspects, normally green for Proceed or red for Stop. There is no provision for following train movements in a station-to-station block.

When a westbound train passes Signal 1, that signal stays red until the train passes beyond Signal 7 at La-Porte. Signal 5 is an "approach" signal, which displays the yellow aspect when Signal 7 is at red. Therefore, signals such as No. 5 can display three aspects; red, yellow and green. Signals 3 and 6 are opposing intermediate signals, which are staggered a minimum of twice train stopping distance, say for example, 11,000 ft. or more. These signals are included in the arrangement for the sole purpose of stopping trains safely if two opposing trains should leave stations simultaneously.

The controls of all the signals in a station-to-station



Signaling for station-to-station block including intermediates for head-on protection

block—i.e., Signals 1, 3, 4, 5, 6 and 8—are all accomplished by track circuits without line wires. The commonly accepted term, "coded track circuits," does not apply to this scheme because different rates of code, such as 75, 120 or 180 per minute, are not used. Instead, the term "impulse" might well apply. The track circuits are the double-end type, i.e., there is a relay and a battery at both ends of every track circuit.

An impulse of d.c. energy, continuing about 0.4 seconds, is fed west, for example, from Signal 2 and is repeated through the track circuits to Signal 8, where it picks up the track relay, which picks up a slow-release relay. Then an 0.4-second impulse feeds east through the track circuits to Signal 1 to pick up the track relay and a slow-release relay. This chain of events, over and back, occurs in a little less than two seconds and is repeated constantly. The slow-release relays, which hold the signals clear, hold up more than two seconds.

All the eastward signals, Nos. 4, 6 and 8, are held at green by the westward impulses repeated. Likewise, all the westward signals, Nos. 1, 3 and 5, are held green by the eastward impulses repeated. When Signal 7 is at red, Signal 5 is controlled to yellow by a different polarity on the track impulse, only in the track circuit from Signal 7 to 5. Thus, all the signals in a station-to-station block, Signals 1, 3, 5 and 4, 6 and 8, are controlled by the track circuits without line wires.

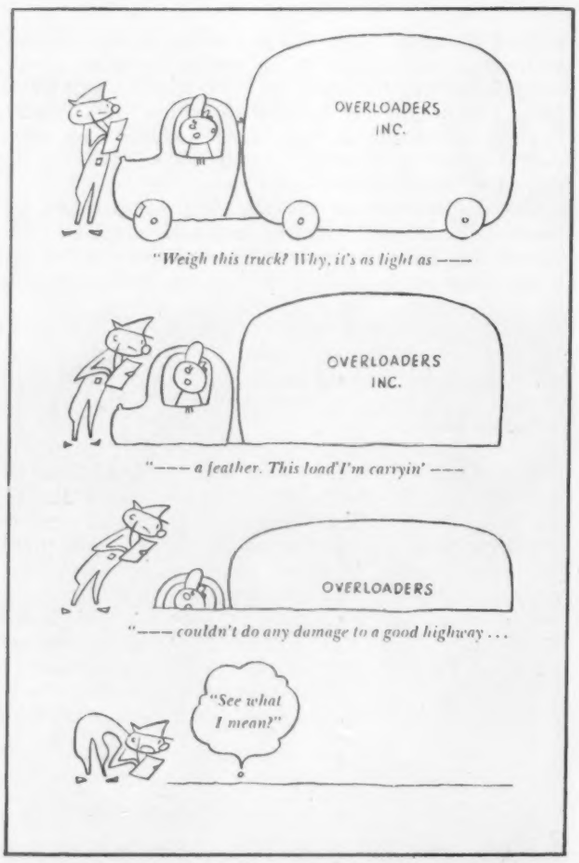
As mentioned previously, there is no provision in this scheme for following train movements in a station-to-station block. However, if an increase in traffic brings a need for following moves, additional circuits can be provided to change to conventional absolute permissive block. The signals are all installed in the correct locations for this.

In Vinton, the main track and siding cross several streets at grade, and, therefore, if there should be a westbound freight waiting on the siding for a westbound passenger train, the freight should be allowed to pull out behind the passenger as soon as possible, in order to avoid undue delay to street traffic. Accordingly, a special control was introduced to clear the westbound station-leaving signal to yellow as soon as the rear of the passenger train passes beyond the first intermediate. The setup can thus be modified to meet special conditions without introducing any special train rules.

In this project the head-block double signal location is ordinarily located 200 ft. out from the siding switch. Where there is considerable local switching in and out of a siding, however, the signals can be set out farther. For example, at the west end of LaPorte, the double-location headblock is out 500 ft. west of the switch; this allows space for the switch engine to work without putting the signals to stop all the way to the next siding.

The signals on this project are the searchlight type with single-filament lamps which are normally fed from an a.c. current supply and are lighted continuously. If the a.c. power fails, the lamp feed is cut over to the battery, with approach control, from station to station. The practice of continuous burning is used because of the information so afforded concerning approach of trains, for the benefit of men operating motor cars. Also, continuous lighting is an aid to maintainers in checking the alinement of signals. The lamps are replaced every 120 days.

This automatic signaling was planned and installed by signal forces of the Rock Island under the direction of C. M. Bishop, signal engineer. The major items of signal equipment were made by the Union Switch & Signal Co.


OVERLOADERS INC.
"Weigh this truck? Why, it's as light as ——
OVERLOADERS INC.
"—— a feather. This load I'm carryin' ——
OVERLOADERS
"—— couldn't do any damage to a good highway . . .
"See what I mean?"

"THE HIGHWAYMEN COME RIDING" is the name of a clever little booklet on abuse of the highways just released by the California Railroad Association, 155 Sansome street, San Francisco 4. It presents the story of "Overloaders, Inc." in a manner that is both fun to read and easy to understand. Copies will be furnished upon request to the association at the address given

Communication . . .

Employees Are Citizens

HUNTERDON COUNTY, N. J.

TO THE EDITOR:

I have been reading *Railway Age* for a number of years, and have always thought that your editorials were to the point and pulling no punches. *Railway Age* for the most part, has always had good constructive ideas, but for some unknown reason, railroad management doesn't seem to take any of these ideas and put them to work.

I am enclosing a clipping from a country newspaper, which I think applies very well to the railroad industry. The editorial I think speaks for itself.

I hope that you may use this as a basis for an editorial by you on this subject, for the need of encouraging railroad employees to take an active part in the public and social life of their communities and in this manner inform the community of the railroad problem.

PHILIP E. BUCHERT

[Our correspondent enclosed an editorial from the "Hunterdon County (N.J.) Democrat" which commented favorably upon a statement of policy by the Standard Oil Company of New Jersey, urging employees of the company to interest themselves in the "problems and opportunities facing the public schools in their communities."—EDITOR]

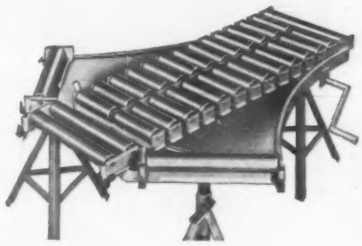
New and Improved
PRODUCTS OF THE MANUFACTURERS

Medium-heavy loading and unloading work may now be undertaken by the Metzgar ramp as the result of adding the new under-bracing as shown

METZGAR IMPROVES LOADING RAMPS

By adding bridge-type underbracing the Metzgar Company of Grand Rapids, Mich., has increased the load handling capacity of its "Save-A-Hoist" gravity-operated loading ramp by more than 25 per cent, according to its announcement. The roller-type ramp is made in standard 10-ft. lengths and is available in either 15-in. or 18-in. widths with 4 rollers per lineal foot. Smaller wheel-type models are also available. Both the wheels and rollers are mounted in ribbed steel channels, braced with cross members of welded steel. They operate in dust resisting ball bearings which are factory lubricated for life.

The firm's "Flex-A-Switch" has been improved by the elimination of the hand lever adjustment in favor of a fast-traverse long lead screw operated by a crank. This screw operates a lever beneath the steel bed of the curve so that the rollers—each mounted in individual frame sections—slide on the bed as a flexible unit to assume the desired change of direction. As all of the axles are thereby concentric at any setting, a positive flow of bags, crates, drums or bags is said to be assured and the necessity for guard rails (except for very fast travel) eliminated. The switch may be used to form a wye, thereby permitting 90-deg. switching to a 180-deg. through line without the use of curved sections.



Metzgar's new flexible loading ramp switch features simplified operation by crank instead of the former hand lever

Only the small triangular section shown need be bolted to the switch and line to permit 90 degree switching with the "Flex-A-Switch"

The latest model Speed Truck has handlebar type steering

KALAMAZOO'S "2500" SPEED TRUCK

A new model in its Speed Truck line, known as the "2500," has just been announced by the Kalamazoo Manufacturing Company, Kalamazoo, Mich.

With pneumatic tires this burden carrier, the manufacturer states, can handle loads of 1 ton, but if "innacush" tires are used its capacity is raised to 3,500 lb.

This new Speed Truck is powered by an air-cooled two-cylinder Wisconsin engine which develops 13 b.h.p. at 2,600 r.p.m. and drives the vehicle at speeds up to 15 m.p.h. The transmission provides three speeds forward and one in reverse. The net weight of the new model is 1,150 lb. Its turning radius is 64 in.

A safety kit, including posters and an industrial lift truck operators' guide, is being distributed by the Towmotor Corporation, Cleveland 10, Ohio. All posters are in color, the better to catch the eye. The operators' guide, which is pocketsize, emphasizes safety precautions and driving regulations

How Visible Records

Frisco finds clerical efficiency increased; change-over from stock book to cards easily made; system may be expanded to handle records for other types of materials

By A. G. DENHAM
General Storekeeper
St. Louis - San Francisco

In its main diesel storehouse at Springfield, Mo., the St. Louis-San Francisco has installed a new visible record system which has given the railroad better control of its stock of diesel parts. This system, devised by the Electro-Motive Division of General Motors, and produced by Acme Visible Records, Inc., not only has given us better stock control, but has increased our clerical efficiency by 50 per cent. The Frisco, we have been told, was the first railroad to adopt this system, although now a number of other lines are using it.

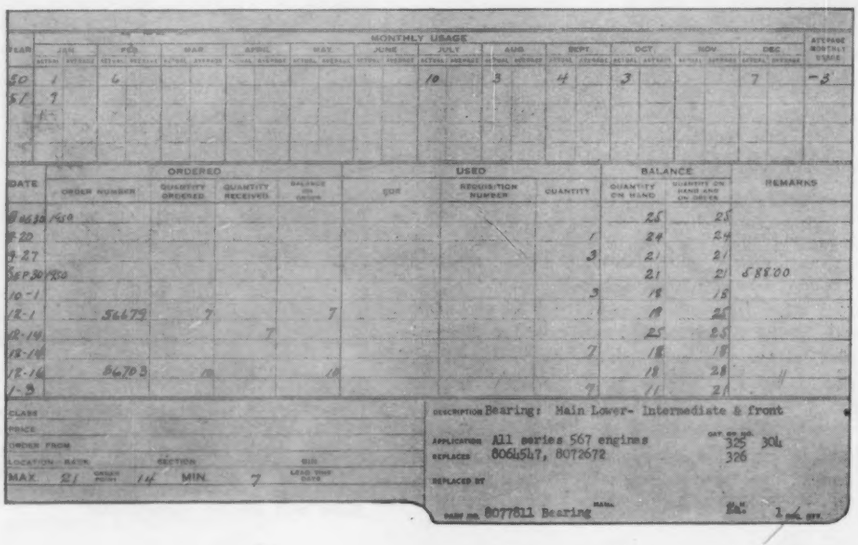
Among recurring ailments of any railroad storekeeping system are the peaks and valleys in parts inventory, which mean overages on some items and critical shortages on others. A cure for this out-of-balance condition, which long has been sought by storekeepers, is a stock record system which provides a clear picture of the on-hand parts situation at all times in order to control quantities of protective materials. One of the first things about the new visible system which impressed us was the ability to see our real stock position at a glance. Cards imprinted with E.M.D. diesel part numbers, name and part application are supplied and fitted in cabinets, designed for the purpose. The cards are held in removable trays — as many as 126 in each — with part number, name and application visible. This puts parts information in a far more accesible form than that provided by any catalog. Colored tabs, supplied with the set, can be attached to any card to let clerks know when to order or expedite shipments. At a glance the full tray of 126 cards can be scanned. This provides a considerable saving in time in comparison with our old stock-book method.

While ability to see one's position at a glance is indeed important in keeping stocks at a proper level, certainly at least equally as important is a standard by which to judge whether or not stock is at a proper level. In order to set such standards, we first established average daily usage. We took as our minimum stock five (average) days of consumption, while the order point was fixed as 25 days of average usage. "Maximum" then was set as the average monthly issue. Where issues have been so infrequent that a monthly average means nothing, we have based our maximum on the issue that would have been able to cover the majority of the past requisitions.

In the short time the system has been working we have discovered an almost equal number of shortages and overages in our parts inventory. We have also discovered that we are better able to control these overages and not pile up big quantities of parts which are rarely used. In short the system actually permits us to write our own inventory ticket, holding it at a desired ceiling, and at the same time to maintain a satisfactory stock on hand to protect our equipment. It places our inventory on an actual usage basis.

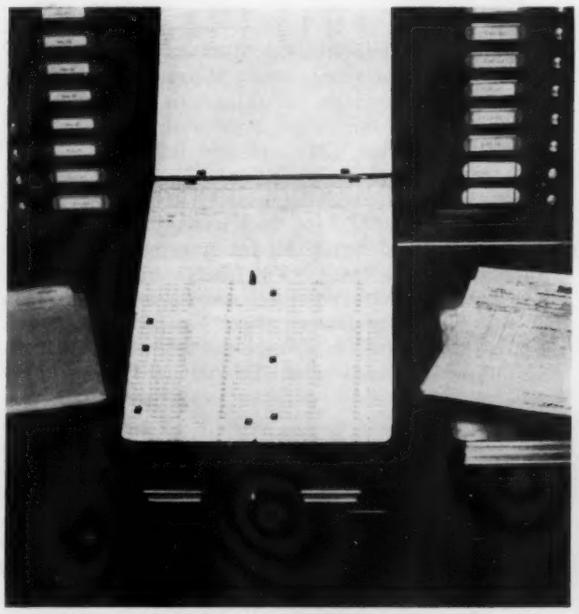
When we first considered the change from the old stock book to the new visible record system, we were much concerned about the time factor in making the change. However, without interruption in our service to the railroad we transferred records for some 3,500 items in short order. Four of our men completed the job in ten working days. From actual experience we can say that the conversion was not at all an involved operation.

First, after the number of cards needed was determined and record-keeping equipment available, an



The stock card is ruled on both sides; it can be used for a long time, even with fast moving items

Improve Stores Control



Above—Tabs indicate stock condition. Above right—This small cabinet holds records for 3,500 items. Right—Posting to the record is easy; records in other trays can be consulted while posting is in progess

actual count was made of the material in each bin location and entered on old stock book sheets. From these sheets we posted to the new record cards the balance on hand and past usage (per month) for the first eight months of the year. Then an average monthly usage was computed and entered. Next we entered all open purchase orders covering material due, and this figure added to the balance on hand was posted in the "quantity on hand and on order" column. Finally prices and bin locations of the items were transferred from the stock book sheets to the visible record cards.

As mentioned, the system includes the use of colored metal tabs as a flag for specific action by the storekeepers. We have followed the recommended practice in setting up color signals on our cards as follows:

Black—Balance on hand has been reduced to order point and order should be placed at next order period
Pink—Material on order
Red—Balance on hand is at, or below, minimum, requiring expediting
Yellow—Partial shipment received and remainder on back order
Green—"On hand" exceeds maximum, indicating surplus stock
Lavender—Discrepancy between record inventory "on hand" and actual physical bin count

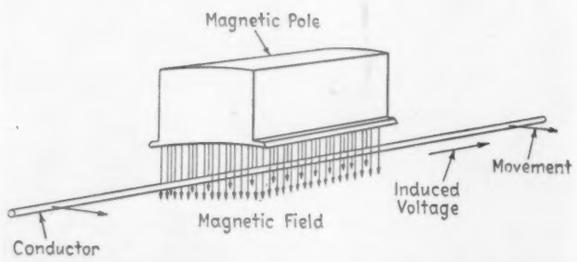
Obsolete items can be designated by permanent rubber stamp mark on visible margin of card.

This signaling method saves us many hours of laborious checking and establishes the visible control, permitting glance analysis of stock conditions. Our very short use of this system leads us to believe we have established a tighter control which will reflect a saving in time, labor and money, and more important to us, enable us to be of better service to our using departments.

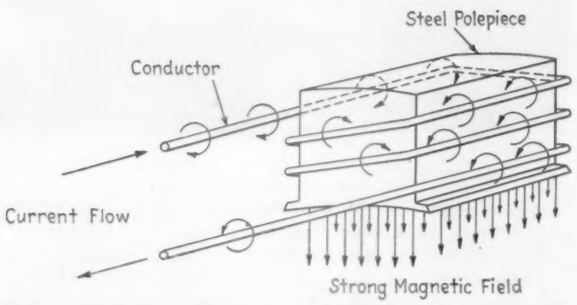
By combining the time used heretofore in searching for part information, stock checks, etc., now unnecessary, with the savings of time resulting from fewer orders needed under the new system, we estimtae the new program increases our clerical efficiency by 50 per cent. This means we are able to do a far better job with the same personnel rather than requiring more clerical help to operate the newest improved system. Since we have diesel power from several builders, the new stock record system does not cover our complete stock of diesel parts. However, we expect soon to expand the system to cover all diesel parts using the same card principle. In fact, we feel that this system is adaptable to most railroad supplies and as experience continues we may expand this system to cover all stores materials.

Service Wrack of

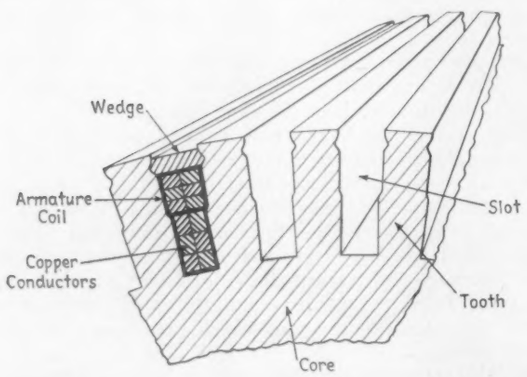
Relationship between electric current flow and consequent magnetic field



Voltage induced in a conductor when passed through a magnetic field



Strong magnetic fields are produced by passing current through a conductor coiled about a steel core



Section of a traction motor armature with one armature coil shown in position

The purchase and installation of a new unit of motive power by a railroad automatically obligates that railroad to a continuous program of inspections and repairs in order to keep this unit in safe condition (1) to perform its operation function, (2) to prevent failures in service, which are generally expensive, and (3) to maintain the value of the investment. Needless to say, this program must be so planned as to insure adequate care at a minimum cost to the railroad, for even then the amount of money spent ultimately on its maintenance will exceed the original purchase price by many times before the economic life of the motive power has been run out.

Repair procedures for steam locomotives have become well known and standardized throughout the years but diesel maintenance and operating procedures are still in a state of flux.

Railroad vehicles and their equipment are subjected to extremely severe operating stresses which cause deterioration of equipment. Discussion of the types of forces and their adverse effects on all groups of apparatus used on a locomotive would be entirely too lengthy, so consideration is given here only to some of those which apply to locomotive electrical equipment. As a matter of fact, many of the forces destructive to electrical apparatus are of the same nature as those causing wear and deterioration of non-electrical locomotive parts and machinery.

Types of Electrical Equipment Used

Direct-current electrical machinery is used on diesel-electric locomotives for transmission of power from the diesel engine to the driving wheels because it affords very simple and effective means for controlling the power flow. While the items of equipment and the machinery designs vary somewhat between the different builders' locomotives, the apparatus in common use is:

A d.c. main generator driven by each diesel engine;

A set of traction motors driving the axles;

Exciters for energizing the main generator fields (some locomotives);

Auxiliary generators for battery charging or other auxiliary purposes;

Motors for driving radiator fans, traction-motor blowers, etc.; and

Control items—contactors, reversers, regulators, relays, etc.

Of these, the rotating machinery used for transmission of propulsion power entails the major part of the electrical repair expense. For these reasons, it is most important to know what takes place within these machines tending to deteriorate their condition or to cause failures.

Severity of Destructive Forces Varies

The main generator of a diesel-electric locomotive receives mechanical energy from the diesel engine and converts it into electric energy for transmission to the traction motors driving the axles. Such a machine varies in speed with the engine (from idling to full engine

Locomotive Electrical Machinery

PART I

What goes on inside a diesel-electric locomotive is important to mechanical, engineering and operating department men

By A. H. CANDEE
Transportation Engineer
Westinghouse Electric Corporation

speed), from zero to maximum voltage, from zero to maximum amperes drawn by the traction motors, and from atmospheric to high operating temperatures. The engine driving torque pulsates with the power stroke of each engine piston, and thus the armature is continually accelerating and decelerating through a very small speed range.

Traction motors take very severe punishment. They vary in speed from zero to their safe limit and in temperature from low to high; must deliver tractive-force values varying up to those which will slip the wheels; are called upon to operate for long periods at their full electrical capacity; and must withstand the most severe physical shocks to which electric machines can be subjected, these shocks originating from high speed running over uneven track, the slipping of wheels, periodic truck vibrations, and coupling.

Among the factors which tend to deteriorate electrical machinery, there are direct mechanical forces caused by violent accelerations or decelerations (shocks) of apparatus or parts, centrifugal action, unbalance, expansions or contractions under varying temperatures and magnetic pull. Parts are subjected to heat, due to variation in magnetism, caused by flow of unwanted electric currents in metallic parts, from passage of electric current through conductors and that generated by friction. There are also electrical stresses, through insulating material and across insulating surfaces.

Electro-Magnetic Relationships

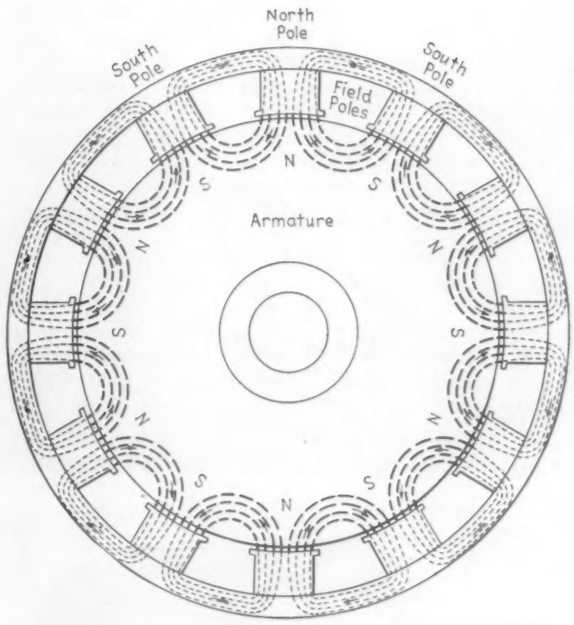
The operation of all locomotive rotating electrical machinery is based upon two interrelated facts which are magnetic in nature:

1. When electric current flows through a conductor, a magnetic field is set up around this conductor, its direction being at right angles to the direction of current flow. The strength of this magnetic field varies with the magnitude of current flow and with the type of materials surrounding the conductor. A weak field results if these materials are non-magnetic, while a strong field results if iron or steel is present.

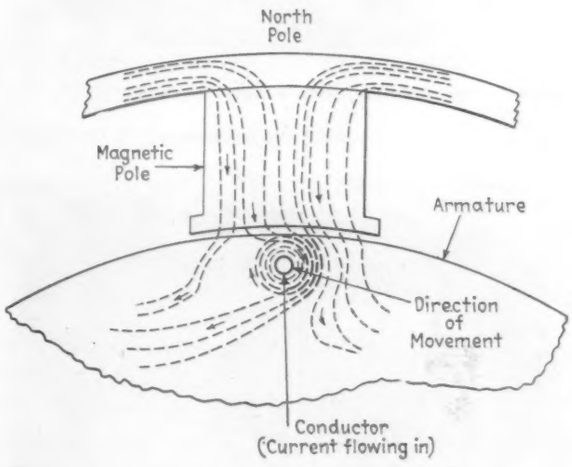
2. Whenever an electric conductor cuts across a magnetic field, an electric voltage is induced in this conductor.

From the first fact, it may be observed that if a conductor is wound around a steel polepiece and current is passed, the polepiece becomes a magnet, the strength of which increases as the current flow increases and which reverses in direction as the current is reversed. The magnetic field poles of a motor or generator are created in this way.

With magnetic fields established, a generator is con-



Magnetic paths in a d.c. generator

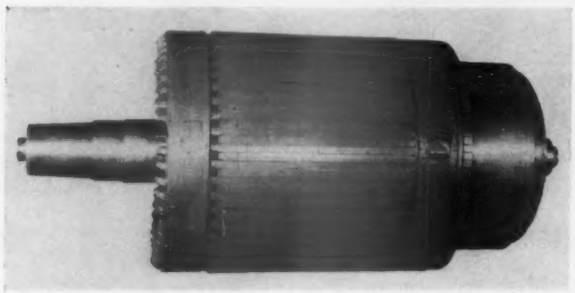


Rubber band action of magnetic forces in a motor

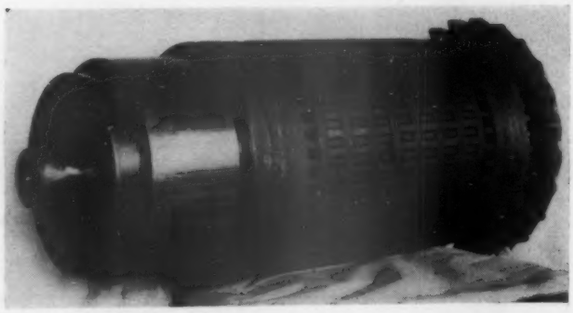
structed by imbedding conductors near the surface of a cylinder and rotating this cylinder within the magnetic fields of a sequence of *north* and *south* magnetic poles which are placed in a circular arrangement inside of a field frame. The field frame and the rotating cylinder are usually made of steel to improve the magnetic paths. However, since any conductor passes alternately across the faces of *north* and *south* poles, the generated voltage (and consequently the current flow) would alternate in direction unless means were introduced to insure a continuous flow in a single direction. This, of course, is accomplished by a commutator, which is a familiar part of any direct current generator or motor.

The generation of electric power in a generator depends upon magnetic fields. The torque of a railway motor is also of magnetic origin, being the result of the interaction between strong stationary magnetic fields and the magnetic fields induced by current passing through the armature conductors. This may be likened to rubber bands forcing the conductor sideways, the magnetic forces of the stationary field adding to those of the conductors on one side and opposing on the other, thus concentrating the magnetism on the one side of the conductor to cause movement. As in the generator, a commutator is necessary in order to insure that current flows through the armature conductors in the proper relation to insure a continuous torque in one direction of rotation.

In rotating, the section near the surface of any motor or generator armature is magnetically excited first in one direction and then in the opposite as it passes by the stationary magnets of alternate polarity. These magnetic variations generate heat and power losses in the magnetic materials and will cause vibrations of any steel parts which may be loose. The magnetic forces are so powerful that the armature has to be extremely strong to keep from being pulled apart. To give an idea of the magnitude of these forces, each main field polepiece of a 1,600-hp. diesel-electric generator, when excited to its full magnetism, exerts a pull on the armature steel of around 12,000 lb. A 12-pole generator has forces totaling 144,000 lb. tending to pull the armature apart. These are in addition to centrifugal forces, which are very high. Moreover, the pull from these field poles varies from a maximum under the pole itself to a minimum in the area between poles. Thus, as the armature rotates there is a continuously pulsating magnetic force—millions of such pulsations per day's operation—acting upon the armature. Pulsating forces, of course, wrack a structure much more than a continuous pull.



Modern motor armature using wedges



Motor armature with core bands

The steel of the armature is an electrical conductor. It has been shown that any electrical conductor cutting through a magnetic field has an electric voltage induced therein. If the armature were solid, this induced voltage would cause local electric currents (called stray currents) to flow longitudinally in this steel core and these currents would cause considerable heating. For this reason, both the armature and the polepieces are built up of thin transverse steel sheets (called laminations or punchings) to break up the paths of such stray current flow. These laminations are electrically insulated from each other by a thin coating of water glass (sodium silicate) applied to both sides and are then assembled under high pressure to insure against vibration and breaking off of loose projections of the assembly. Since conductors are to be imbedded near the armature surface, slots are provided in the steel punchings, thereby causing the armature surface to deviate somewhat from a solid cylindrical shape.

Centrifugal Forces

The rotation of an armature sets up high centrifugal forces, and means must be provided to prevent coils from being thrown out of the slots. Modern practice is to wedge the coils in place with non-magnetic material and to use bands of non-magnetic steel to hold only the end turns in place, these bands being outside of the area of strong magnetic influence.

The wrack of electric rotating machinery from magnetic actions, then, arises from vibrations of magnetic materials, loosening of parts due to magnetic pulls, variations, and reversals; heating of iron and steel parts because of these magnetic changes; and heating from local stray currents (which may become troublesome if too many laminations are short-circuited accidentally).

A mechanical shock is a rapid acceleration or deceleration caused by external forces, such as by rough coupling, sudden change in rail elevation when a locomotive is moving at high speed, entering curves at high speed, locomotive or truck nosing or other periodic vibrations, and from similar actions. Such shocks are of major magnitude on equipment mounted on trucks or running gear, and are of lesser severity (except for coupling impacts) to equipment carried by the locomotive frame because there is considerable cushioning through the locomotive spring assemblies. Such shocks are responsible for many of the electrical equipment troubles, particularly on traction motors. Under such shocks, bearings can be damaged, brushes may jump away from commutators, contactors may be jarred to a closed position, mounting studs and panels broken, parts stressed beyond safe limits and other miscellaneous damages caused.

Continued repetition of such violent mechanical stresses may fatigue copper conductors or steel parts; loosen nuts, bolts, and electrical connections; deflect supposedly rigid structures; shake parts of equipment loose, or cause excessive wear at bolted or clamped joints where wear should not occur.

The care of electrical equipment must continually include visual inspections and (in some cases) physical tests in order to detect the adverse effects of these mechanical shocks so that they may be corrected before road failures occur.

The forces resulting from mechanical shock contribute greatly to the service wrack of locomotive electrical equipment.

Rotational Stresses

Because of the limited space on a locomotive and the high power output demanded of the prime mover and the electric power equipment, designers are forced to apply apparatus to rather high limits of mechanical and electrical safety. As an example, that portion of the two armature coils imbedded (one on top of the other) in a slot of a 21-in. traction-motor armature, weighs slightly more than three pounds, yet at the maximum operating speed (limited by armature rotation) the centrifugal force exerted on the wedges holding these coils in the slot exceeds 5,500 lb.—nearly three tons.

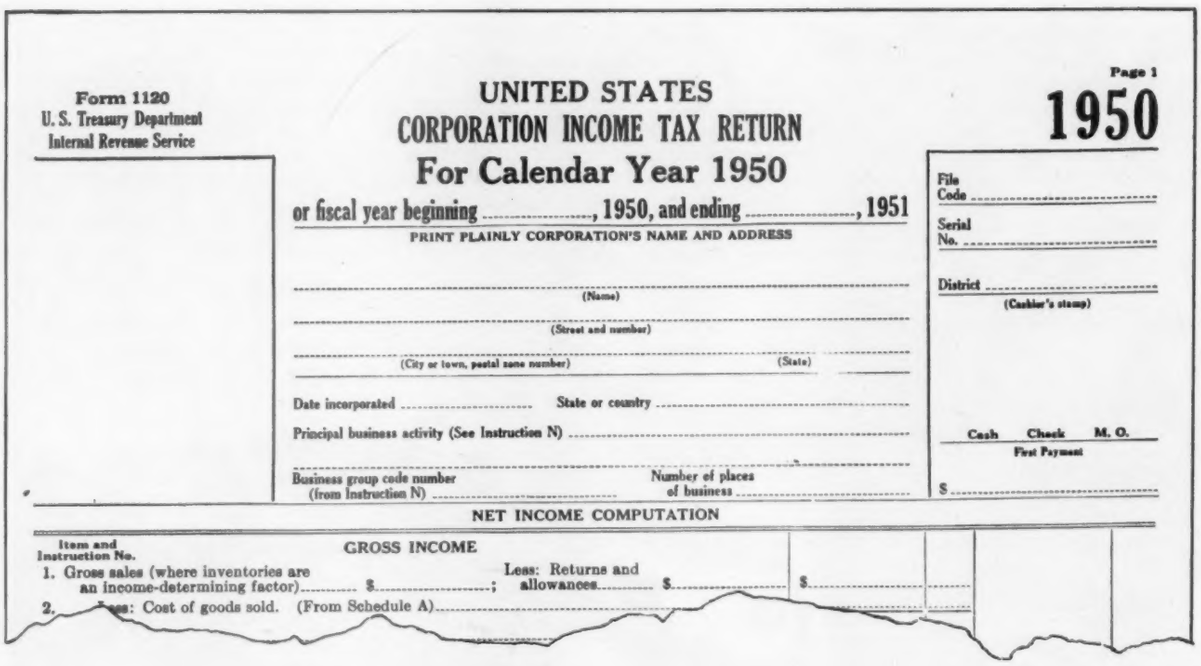
Forces of like nature tend to throw the end windings outward (the portions of the coil outside of the core are known as the end windings), and these are restrained by non-magnetic band wire of high tensile strength. These figures give an idea of the forces which tend to crush or deform the insulation between conductors and wedges at the outer coil surfaces when the motor operates at elevated speeds.

The magnitude of forces set up by centrifugal action also act adversely on the weight unbalance of a rotating armature. An unbalance of as little as an ounce at the surface will result in an out-of-balance force of well over 100 lb. Any appreciable unbalance tends to vibrate the machine, deflect the shaft, and impose extra duty on the bearings.

Gradual Deformation of Parts

Practically all cast or fabricated components of machinery are characterized by internal stresses in the materials themselves as a result of the heat used during the processes of manufacture, even when "stress relieved" by controlled heating and cooling of the rough finished parts. These internal stresses sometimes cause a gradual deformation or "growing" of some portions of a structure, persisting for a considerable length of time—even for several years.

[Part II of this article will deal with electrical stresses which are not perceptible to the physical senses but which cause deterioration of electrical locomotive equipment and which must be considered in maintenance programs and methods.—EDITOR]



Form 1120
U. S. Treasury Department
Internal Revenue Service

UNITED STATES
CORPORATION INCOME TAX RETURN
For Calendar Year 1950
or fiscal year beginning ....., 1950, and ending ....., 1951

Page 1
1950

PRINT PLAINLY CORPORATION'S NAME AND ADDRESS

(Name)

(Street and number)

(City or town, postal zone number) (State)

Date incorporated ..... State or country .....

Principal business activity (See Instruction N) .....

Business group code number (from Instruction N) ..... Number of places of business .....

File Code .....

Serial No. .....

District .....

(Cashier's stamp)

Cash Check M. O.

First Payment

$ .....

NET INCOME COMPUTATION

Item and Instruction No.

GROSS INCOME

1. Gross sales (where inventories are an income-determining factor)..... $.....; Less: Returns and allowances..... $..... $.....

2. Less: Cost of goods sold. (From Schedule A).....

How Taxes Affect Class I Railroads

Railroads have always been fair game for the tax collector. They serve thousands of communities whose financial requirements necessitate an ever-increasing "take." With so large a number of communities dependent on them for a large portion of their essential revenues, it should occasion little wonder that, on the insistence of these communities, railroads must maintain numerous public services, even though unprofitable.

Tax Rates Forced Up

Costs incident to construction and maintenance of highways, airports and waterways, and the necessary and unnecessary expenses of federal, state and local governments have in recent years forced tax rates up, and have made new tax sources. The peacetime squeeze of the tax collector has created a tax burden which is already beyond the point of diminishing returns in far too many instances, and the burden falling on the railroad industry is at or beyond that point of peril — so much so that the taxing authorities might well ponder the meaning of the trends shown in the accompanying tables.

Table 1 indicates that gross profit margins in the past two decades have declined sharply. Such a drop for as important an industry as railroads is very serious to the economy of the United States. The only encouraging trends discernible in Table 1 are the gradual reduction of fixed charges, and that, as gross revenues rise, a smaller percentage is needed to serve the industry's debt. This, however, has been offset by the rapid rise in federal income taxes from $88.6 million in 1929 to $601.2 million in 1950, which increase can be contrasted with a decline

This article is an abstract, with some additional data, of a study by Pierre R. Bretey, railroad analyst of Baker, Weeks & Harden, New York, originally published in the Analysts Journal.

Table 1—Per Cent of Gross Revenue Carried Through to Net Railway Operating Income Before Federal Income Taxes

Class I Railroads (Thousands of Dollars)

	1929	1939	1949	1950
Gross revenues	$6,279,520	$3,995,004	$8,580,142	$9,473,211
Net railway operating income	1,251,697	588,829	686,487	1,039,835*
Carried through to net railway operating income before federal income taxes (per cent)	21.34	15.56	11.05	17.32
Federal income taxes	$88,662	$32,835	$261,632	$601,193
Federal income tax as per cent of net railway operating income	7.08	5.58	38.11	57.81
Per cent of Gross Revenue Absorbed by Fixed Charges				
Fixed charges	$680,438	$607,740	$421,358	$424,930†
Per cent of gross revenue absorbed by fixed charges	10.84	15.21	4.91	4.81†

*Includes retroactive mail pay.

†12 months ending September 30.

in fixed charges in the same period from $680.4 million to $424.9 million.

Table 2 clearly indicates that the load of state and city taxes is gradually becoming less burdensome, but this is more than offset by the sharp rise in federal taxes. It should be noted that federal taxes in 1929 amounted to only one-eighth of the industry's then fixed charges, whereas in 1949, two decades later, federal taxes, including retirement and unemployment levies, exceeded the industry's fixed charges by some 25 per cent. In part, this increase in the tax burden was the result of the declining fixed charge burden, as already noted.

Responsible in part for the increase in federal taxes was the imposition on the railroads of relatively heavy retirement and unemployment taxes. Beginning in January 1937, effective date of the Railroad Retirement Act, railroad retirement and unemployment levies have greatly exceeded those of other industries. Throughout all the period under review, other industries were forced to set aside only 1 per cent of total salaries up to $250 per month, whereas the railroads were forced to set aside 2¾ per cent of the first $300 of monthly compensation for the years 1937-39, with the percentage gradually rising so that currently it was to have been 6 per cent with a maximum of 6¼ per cent for 1952 and subsequent years.

However, the railroads obtained temporary relief in 1948 and 1949 through reduction of unemployment taxes (Taft-Wolverton Act) from 3 per cent of annual wages up to $3,000 per employee to ½ per cent. The unemployment tax rate will automatically be increased to 3 per cent when the insurance fund, approximately $950 million at the time of the passage of the bill, declines to $450 million. As long as employment remains at high levels, drain on the fund will be moderate. However, a period of economic distress, even for so brief a period as one year, might wipe out the surplus in the fund.

Effect of These Taxes

The effect of the impact of these taxes is reflected in Table 3. It will be noted that unemployment taxes declined from $117.4 million in 1946 to $19.4 million in 1949.

Burdensome taxation of Class I railroads is not limited to these examples. One tax that, in the interest of fairness, should be repealed concerns the 2 per cent penalty for filing consolidated federal income tax returns. Railroads feel somewhat aggrieved because of this tax. Any railroad system of size must operate across state lines. Yet many states, through insistence that ownership of properties operated in the public interest be limited to corporations created only under laws of those states, compel the formation of separate companies. For instance, a resident corporation is mandatory in Texas. Consequently, many railroads have expanded, not through mergers, but through leasing corporations which own railroad properties in each state through which the system operates. The Pennsylvania is a striking example of this development. Under this method, lines of the lessor companies are operated as part of a system, with the lessee frequently owning all the stock of the lessor company. In such instances, both lessor and lessee, for all intents and purposes, constitute one economic unit.

Apart from the unfairness of the imposition of this tax, where the law here creates a taxable circumstance, there are further objections. The Treasury benefits from the imposition of the consolidated return, since it must deal with only one corporation, the parent. Consequently, in all fairness, rather than levy a special charge on companies that bear the costs of collating consolidated figures, the Treasury should actually absorb all, or at least a part, of the cost to such corporations as file on a consolidated basis.

Other taxes that ought to be repealed are special excise levies, such as the 15 per cent on passenger fares and 3 per cent on all freight bills except coal, which is taxed at 4 cents per ton. Such excise taxes have no place

One reason taxes bear so heavily on railroads is that they are the only agency of transportation which consistently builds, maintains and pays taxes on all its own terminal facilities. This Union Station at Washington, D. C., for example, cost the railroads $21 million back in 1907; on it, they pay, in addition to all operating expenses and interest, about $290,000 per year in property taxes and $165,000 in income taxes—$455,000 a year in taxes alone. By contrast, the railroads' air line competitors use a tax-free Washington airport built entirely at government expense. The airport costs about $1.5 million per year to operate, without allowance for interest or return on its $23-million cost, yet the air lines pay only nominal charges of a few thousand dollars a year for its use

TABLE 2—IMPACT OF TAXES
Class I Railroads
(Thousands of Dollars)

	1929	1939	1949
State and city	$306,115	$212,433	$313,534
State unemployment	....	23,674	....
	$306,115	$236,107	$313,534
Per cent to gross	4.87	5.91	3.65
Federal income	$ 88 662	$ 32,836	$261,632
Railroad retirement	....	50,314	233,766
Railroad unemployment	....	28,665*	19,403
Social security unemployment	....	2,897*	....
Capital stock taxes cr.	18	3,711	....
All other	800	309	2,971
	$ 89,480	$118,731	$517,773
Per cent to gross	1.42	2.97	6.03
Per cent combined taxes to gross	6.29	8.88	9.68

*The two entries shown for unemployment in 1939 reflect the fact that the Railroad Unemployment Insurance Act became effective on July 1, 1939, and railroads paid taxes under state laws for half a year, and under federal law for the other half.

TABLE 3—FEDERAL RAILROAD RETIREMENT AND UNEMPLOYMENT TAXES
Class I Railroads
(Thousands of Dollars)

	1936	1938	1940	1942	1944	1946	1948	1949
Railroad retirement	$47,298	$47,084	$58,222	$85,509	$120,172	$136,931	$243,886	$233,765
Railroad unemployment	....	....	58,209	85,503	110,778	117,431	21,085	19,403
Social security unemployment	8,800	5,891	....	....	....	....	....	....
	$56,098	$52,975	$116,431	$171,012	$230,950	$254,362	$264,971	$253,168
Retirement and unemployment taxes as per cent of gross	1.40	1.49	2.71	2.29	2.45	3.33	2.74	2.95

in our economy. Retention of excise levies is not only uneconomic but also unwise. Because of their repressive effect on our economy, they should be repealed in their entirety.

Carriers Badly Handicapped

One burden indirectly connected with the tax factor should be mentioned, namely, the inadequacy of depreciation reserves. Present Treasury rulings currently work to the disadvantage of the railroads, and certain minor changes, if approved by the Treasury, would benefit both the railroads and the public alike. Railroads must be maintained at highest possible standards if quality service at low cost is to be obtained. To accomplish this desired end, the railroad industry needs a constant flow of capital.

The railroads have endeavored to play their part in increasing their transportation efficiency through large-scale capital expenditures. But the Treasury has not encouraged continuance of such a program through a policy of allowing liberal depreciation reserves. The postwar period will illustrate this point. Cost of miscellaneous equipment has risen approximately 75 per cent above 1939 levels. Yet, in the face of such an increase in costs, depreciation allowances of all Class I railroads averaged but $384 million (four-year period 1946-49), whereas average expenditures on capital accounts exceeded $1 billion in this period. At the present time depreciation rates allowed for tax purposes are slightly more liberal than those permitted by the Interstate Commerce Commission. Doubtless in time the latter body will adjust its rates to those of the Treasury. To rectify a depreciation policy which in most instances sharply limits capital expenditures, a policy not limited exclusively to the railroad industry, a twofold adjustment appears desirable: (1) a more liberal depreciation allowance permitted by the Treasury, and (2) a more flexible rate structure allowed by the I.C.C. to facilitate absorption of increased depreciation charges.

Since there are only two sources of capital available to railroads, access to the capital markets or reinvestment of earnings, it is evident that those carriers unable to obtain access to the capital markets are badly handicapped. In fact, with a corporate tax burden of at least 45 per cent, those railroads forced to use retained earnings for capital expansion purposes must earn $1.82 for each $1 spent on capital expenditures. That most railroads have had little access to capital markets, other than for equipment trust financing, is evident from the record. Capital markets have been virtually closed to all but a select few railroads since the mid-thirties.

Since railroads are the very blood of our economy, two proposals made by the Association of American Railroads to rectify these inequities seem worthy of mention. The first provides that, in addition to whatever relief the railroads will obtain from the special five-year depreciation provision on facilities either purchased or erected for the defense effort, they be permitted to amortize 50 per cent of the costs of depreciable property acquired in the year immediately preceding the filing of the company's tax return; the second, that the railroads, in arriving at their net income subject to tax, be allowed to deduct from gross income an amount not in excess of 25 per cent of their net taxable income, provided the latter sum would be set aside in a separate reserve for capital expenditures, and provided that the funds be used within a period of three years.

Greater depreciation allowances and tax credits would make possible more liberal expenditures for capital account and thus encourage replacement of outmoded equipment with new, more economic equipment, thus benefiting both the railroads and society alike.

The only major type of tax which, at present, seems likely to bear somewhat less heavily on the railroads than on other businesses is the recently enacted excess profits tax — as that tax now stands. But the fact that only 11 of 41 large Class I railroads for which figures are given in Table 4 appear to be subject to that tax on 1950 earnings is perhaps as eloquent proof as any one fact could be, of the depressed nature of the earnings of the industry as a whole.

Conclusion

Under normal circumstances, the heavy tax burden imposed on the railroads in the past several decades would have wreaked havoc on the Class I carriers. Their earnings and finances would have been greatly impaired. However, the temporary stimulus provided by the war, resulting in improved finances and accelerated reduction in overall debt burden, and, above all, the economies brought about by cumulative benefits from investment of some $8 billion in capital expenditures since 1940, have tended to retard the adverse effect of the tax burden as shown herein.

Although further economies are still in prospect through additional expenditures on capital account, technological improvements are not likely to continue for long at the rate attained in recent years. Therefore we can only hope that the tax collector ponders well the seriousness of the present situation. Otherwise, to all groups interested in railroads, ranging from owners of securities to the taxing authorities, the consequences may well ultimately prove disastrous.

TABLE 4—EFFECT OF EXCESS PROFITS TAX

Railroad	1950 earnings per share of common stock —actual or estimated*	Estimated net exemption per share of common stock under excess profits tax
Atchison, Topeka & Santa Fe	$31.29	$20.10
Atlantic Coast Line	15.51	21.75
Baltimore & Ohio	2.52	12.26
Boston & Maine (new common)	4.02	22.00
Chesapeake & Ohio	4.25	3.95
Chicago & Eastern Illinois	6.50	8.25
Chicago & North Western	2.49	34.00
Chicago, Burlington & Quincy	19.76	17.56
Chicago Great Western	5.59	8.75
Chicago, Milwaukee, St. Paul & Pac.	4.50	11.50
Chicago, Rock Island & Pacific	10.19	16.24
Colorado & Southern	2.99	6.52
Delaware & Hudson	6.61	7.40
Delaware, Lackawanna & Western	2.28	5.33
Denver & Rio Grande Western	13.45	17.85
Erie	4.67	5.93
Great Northern (preferred)	9.11	12.93
Gulf, Mobile & Ohio	7.20	8.55–11.34
Illinois Central	20.62	17.19
Kansas City Southern	10.42	12.85
Lehigh Valley	2.42	4.55
Louisville & Nashville	10.39	8.95
Minneapolis & St. Louis	4.61	2.45
Minneapolis, St. Paul & S. S. Marie	2.29	7.10
Missouri-Kansas-Texas	2.07	8.95
New York Central	2.84	9.02
New York, Chicago & St. Louis	50.77	33.60
New York, New Haven & Hartford	5.13	11.40
Norfolk & Western	4.80	4.15
Northern Pacific	7.87	12.89
Pennsylvania	2.92	7.15
Reading	4.65	11.50
St. Louis-San Francisco	6.57	8.00
Seaboard Air Line	15.79	11.00
Southern	14.94	18.25
Southern Pacific	13.38	15.00
Texas & Pacific	18.23	14.90
Union Pacific	14.85	11.45
Virginian	4.02	4.60
Western Maryland	7.28	13.75
Western Pacific	10.33	31.00

*1950 earnings per common share are, in some cases, partly estimated; are calculated generally before deduction of sinking funds or other special appropriations, and include the non-recurring item of retroactive mail pay.

Purchases of Class I Roads

In 1950 Totaled $1,739,908,000

Class I railroads in 1950 spent $1,739,908,000 for fuel, materials and supplies of all kinds used in connection with their operations, the Association of American Railroads announced on April 20. This was an increase of $98,502,000 compared with 1949 (*Railway Age*, April 15, 1950, page 57). Expenditures for fuel exceeded all others. For fuel alone the railroads spent $608,719,000 in 1950, compared with $564,159,000 in 1949. Expenditures for iron and steel products of all kinds in 1950 were next in size, totaling $509,506,000, compared with $454,079,000. Purchases of track material such as steel rail, frogs, switches and track fastenings, increased from $185,661,000 in 1949 to $201,184,000 in 1950.

For miscellaneous products, including cement, lubricating oils and grease, ballast, electrical materials, stationery and printing, commissary supplies for dining cars, camps and restaurants, and other items, expenditures in 1950 totaled $500,427,000 compared with $480,936,000. The roads also spent $121,256,000 for forest products in 1950 compared with $142,232,000. Purchases of cross and switch and bridge ties decreased from $101,287,000 to $73,187,000, while purchases of lumber and all other forest products increased from $40,945,000 to $48,069,000.

Comparisons with 1949 revealed increases in the amounts expended by Class I railroads in 1950 in most items bought. Outstanding was an increase of nearly $40,000,000 in diesel fuel oil purchased, as well as increased expenditures for steel, freight and passenger cars and locomotives; diesel locomotive material other than electrical, and telegraph, telephone and radio material.

ANNUAL PURCHASES OF MATERIALS AND SUPPLIES (EXCLUDING EQUIPMENT) 1923-1950

Class I Railroads (Thousands of dollars)

Year	Fuel	Forest products	Iron and steel products	Miscellaneous	Total	Total less fuel
1923	$617,800	$232,511	$464,955	$423,437	$1,738,703	$1,120,903
1924	471,656	180,872	365,610	324,917	1,343,055	871,399
1925	459,465	170,305	419,255	343,018	1,392,043	932,578
1926	473,354	186,291	507,302	392,085	1,559,032	1,085,678
1927	438,821	175,729	407,304	374,074	1,395,928	957,107
1928	384,608	160,794	374,575	351,364	1,271,341	886,733
1929	364,392	157,551	406,962	400,630	1,329,535	965,143
1930*	306,500	134,600	304,700	292,700	1,038,500	732,000
1931*	244,500	76,250	188,600	185,650	695,000	450,500
1932*	178,250	52,200	94,550	120,000	445,000	266,750
1933	180,526	42,442	104,327	138,555	465,850	285,324
1934	217,294	64,271	150,671	167,988	600,224	382,930
1935	232,723	57,367	135,397	167,538	593,025	360,302
1936	272,270	76,683	239,486	214,982	803,421	531,151
1937	294,293	104,707	310,658	256,725	966,383	672,090
1938	243,783	56,968	127,141	155,390	583,282	339,499
1939	257,273	69,971	236,338	205,732	769,314	512,041
1940	273,556	82,185	264,480	234,242	854,463	580,907
1941	349,765	103,771	379,951	327,787	1,161,274	811,509
1942	426,335	115,227	353,957	364,292	1,259,811	833,476
1943	527,296	150,225	339,631	377,099	1,394,281	866,985
1944	585,832	158,957	431,692	434,048	1,610,529	1,024,697
1945	555,155	136,962	418,438	461,849	1,572,404	1,017,249
1946	553,153	148,984	416,303	452,115	1,570,555	1,017,402
1947	691,630	171,592	503,965	542,022	1,909,209	1,217,579
1948	833,040	166,488	590,289	593,514	2,183,331	1,350,291
1949	564.159	142,232	454,079	480,936	1,641,406	1,077,247
1950	608,719	121,256	509,506	500,427	1,739,908	1,131,189

*Railway Age estimates.
Note: "Iron & Steel products" and "Miscellaneous", 1927-1948, revised to conform with report MS-24, Year 1949.
Source: Reports of the carriers to the Bureau of Railway Economics.

PURCHASES OF FUEL, MATERIAL AND SUPPLIES—Railways of Class I—Calendar Years 1950 and 1949

Item	1950	1949
FUEL:		
Bituminous coal	$317,927,000	$318,642,000
Anthracite coal	5,080,000	4,872,000
Fuel oil—Residual	93,402,000	90,723,000
Fuel oil—Diesel	171,941,000	132,474,000
Gasoline	8,257,000	8,475,000
All other (coke, wood, fuel for illumination)	12,112,000	8,973,000
Total fuel	$608,719,000	$564,159,000
FOREST PRODUCTS:		
Cross ties (treated and untreated)	$ 55,736,000	$ 82,048,000
Switch & bridge ties (treated & untr.) and timber	17,451,000	19,239,000
Lumber (equipment, rough and finished)	38,932,000	33,245,000
Other forest products	9,137,000	7,700,000
Total forest products	$121,256,000	$142,232,000
IRON AND STEEL PRODUCTS:		
Steel rail (new and second hand, except scrap)	$ 99,123,000	$ 94,669,000
Wheels, axles and tires	52,482,000	46,838,000
Frogs, switches and crossings, and parts of same	23,175,000	23,882,000
Track fastenings, track bolts, spikes, etc.	78,886,000	67,110,000
Iron bridges, turntables & struct. steel, all kinds	7,147,000	8,372,000
Bar iron and steel, spring steel, tool steel, unfabricated rolled shapes, wire netting and chain, except light coil; boiler, firebox, tank, and sheet iron and steel, all kinds	41,241,000	33,883,000
Forgings and pressed steel parts for locomotives	3,029,000	4,173,000
Car forgings, iron & steel, and fabricated or shaped steel, for passenger and freight cars	29,899,000	21,932,000
Flues and tubes for locos. & stationary boilers	5,161,000	5,941,000
Bolts, nuts, washers, rivets, lag screws, pins & studs	14,691,000	9,841,000
Springs, helical and elliptical, all kinds for locomotives and cars	4,538,000	4,229,000
Locomotive and car castings, beams, couplers, frames and car roofs	76,152,000	57,969,000
Track and roadway tools, all kinds, including hand and power operated tools, miscellaneous roadway material and fencing.	14,107,000	12,843,000
Motor, hand, push and trailer cars, and parts for same	19,943,000	24,869,000
Machinery and repair parts	6,315,000	6,239,000
Boilers, and all other iron and steel products including pig iron	9,170,000	7,923,000
Pipe, iron and steel, and fittings, all kinds	7,828,000	6,395,000
Hardware, all kinds, including nails	12,913,000	11,658,000
Hand & small machine tools, such as drills, taps, reamers, dies, chasers, including air tools & parts	3,706,000	5,313,000
All other iron and steel products	$509,506,000	$454,079,000
Total iron and steel products		
MISCELLANEOUS:		
Cement	$ 3,928,000	$ 3,485,000
Lubricating oils and grease; illuminating oils, boiler compound, waste	38,605,000	33,740,000
Non-ferrous metal and non-ferrous metal products	39,362,000	32,397,000
Ballast	22,327,000	19,571,000
Electrical materials including electrical material for Diesel locomotives	41,551,000	43,791,000
Stationery and printing	28,777,000	28,929,000
Commissary supplies for dining cars & restaurants	39,435,000	42,836,000
Rubber and leather goods	11,840,000	9,844,000
Glass, drugs, chemicals, including chemicals for timber treatment; painters' supplies	47,528,000	42,315,000
Arch brick for locomotives	3,741,000	3,623,000
Passenger car trimmings	12,912,000	12,867,000
Locomotive, train and station supplies	25,525,000	22,882,000
Interlocking and signal material	34,242,000	39,046,000
Telegraph, telephone and radio material	11,571,000	9,853,000
Air brake material	20,435,000	20,841,000
Standard & spec'l mechanical appliances for locos.	13,368,000	13,375,000
Automotive equip. & supplies, except Diesel elec.	14,771,000	19,736,000
Diesel locomotive material—not electric	53,693,000	37,863,000
All other miscellaneous purchases	36,816,000	43,942,000
Total miscellaneous purchases	$500,427,000	$480,936,000
Grand Total	$1,739,908,000	$1,641,406,000

Source: Reports of the carriers to the Bureau of Railway Economics.

GENERAL NEWS

Air Lines Reached New Peak In Passenger Traffic for 1950

They got 45.4 per cent of the combined air and first-class rail business, according to I.C.C. bureau's "Monthly Comment"—Other articles compare U. S. and British freight-rate increases, and show trend of car-mile costs and expenses

Air line passenger traffic in 1950 reached a new all-time peak. It totaled 45.4 per cent of first-class rail and air traffic combined. The 7,766 million passenger-miles reported for the year were 18.3 per cent above 1949; by comparison, the 9,340 million revenue passenger-miles of first-class traffic on Class I railroads in 1950 was 0.1 per cent below 1949.

This comparison between passenger traffic on domestic trunk air lines and parlor and sleeping car traffic of the railroads was contained in the latest issue of the "Monthly Comment," regular publication of the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.

Other articles appearing in the issue included one on changes in rail freight rates in the United States and Great Britain since 1938. It indicated, among other things, that rates in this country have increased on an overall level by 61.1 per cent and those in Britain 81 per cent.

The I. C. C. bureau also commented on railroad and air line passenger fatalities, and discussed car-mile revenues and expenses for Class I roads. It reviewed transportation trends for bituminous coal and lignite, as well as recent truck and freight car purchases.

Air-Raid Traffic and Safety

The article on first class railroad and air line passenger traffic noted that in 1938 the air lines accounted for only 6.1 per cent of all such traffic. By 1945 the air lines had increased their share to 11.1 per cent, and since that time have shown substantial gains every year. Their figures for the past two years include the so-called "air coach" traffic, which, in 1950 alone, accounted for 1,052 million revenue passenger-miles.

First-class passenger traffic of the railroads has, on the other hand, declined steadily since 1944. Revenue passenger-miles in 1950 reached the lowest level since 1941. They had declined from the wartime peak of 26,944 million in 1944 to 9,349 million in 1949, and 9,340 million in 1950.

This review of the growth in air line traffic was followed in the "Comment" by a comparison of railroad and air line passenger fatalities since 1930. On the basis of fatalities per billion passenger miles, the railroads were only about twice as safe as the air lines in 1950. In 1949 their record indicated they were about 14 times as safe.

"Over the past 20 years there has been a pronounced downward trend in the rate of air travel fatalities," the "Comment" article said. Preliminary figures indicate that in 1950 the air lines set a new low in fatalities, it continued. Ninety-six persons were killed. The air line fatality rate per billion passenger miles was thus 11.5, as compared to a rate of 13.2 in 1949 and 281.9 in 1930.

The railroads, however, had a bad year in 1950. Their fatality rate rose sharply. A total of 177 passenger fatalities occurred, placing the fatality rate at 5.56 per billion passenger miles. The next highest rate over the past 20 years was in 1938 when it was 3.46. In 1949 the rate had been 0.91, the lowest on record.

U.S. and British Freight Rates

The article on freight rates in the U. S. and Great Britain included comparisons of average ton-mile revenues in the two countries. The average ton-mile revenue in the U. S. in 1950 was 1.329 cents, as compared to 0.983 cents in 1938. The British average in 1950 was 2.15 pence, where in 1938 it had been 1.258 pence.

It was noted that because of variations in the value of the "cent" and "pence," and the inclusion of both revenue and non-revenue traffic in the British figures, the average ton-mile revenues "are not strictly comparable."

The bureau, however, went on to show the changes by use of index numbers. Using 1938 as the base year of 100, the average revenue per ton-mile in the U. S. by 1950 had risen 35 per cent, the index for that year having been 135. The rise in Britain was 71 per cent, the 1950 index having been 171.

By the end of 1950, U. S. freight rates had advanced 57.3 per cent since 1938, although average revenue per ton-mile was up only 35 per cent. In Great Britain, at the end of 1949, rates had advanced 55 per cent and average ton-mile revenue was up 57 per cent. In setting up this comparison the bureau pointed out that in the U. S. the spread between the percentage increase in rates and that in ton-mile earnings was 22 points, as compared to 2 points in Britain.

Commenting on this spread, the bureau explained that average ton-mile revenue is affected not only by changes in freight rates, but also by other factors, including changes in the composition of traffic and in length of hauls for particular commodities. Rate reductions made to meet competitive situations also affect ton-mile earnings, it said.

Turning to its discussion of revenues and expenses per car-mile, the bureau pointed out that car-mile revenue of freight and passenger service combined was 78 per cent higher in 1950

In the Week's News . . .

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REVENUES AND EXPENSES (IN CENTS) PER CAR-MILE

Class I line-haul railways
Years 1940, 1949 and 1950

Item	1940 (Cents)	1949 (Cents)	1950 (Cents)	Percent of change 1950 vs. 1940	Percent of change 1950 vs. 1949
Operating revenues	15.76	26.74	28.06	+78.0	+4.9
Operating expenses	11.33	21.47	20.91	+84.6	—2.6
Depreciation [1]	.75	1.32	1.32	+76.0	..
Fuel and train power	.96	1.78	1.67	+74.0	—6.2
Compensation to employees	6.81	13.06	[3]13.00	+90.9	— .5
All other	2.81	5.31	4.92	+75.1	—7.3
Passenger revenue per passenger-carrying car-mile	24.6	44.2	43.5	+76.8	—1.6
Freight revenue per loaded freight car-mile	24.0	39.5	39.8	+65.8	+ .8
Freight revenue per freight train car-mile [2]	14.8	25.2	26.3	+77.7	+4.4

1 Includes amortization of defense projects.
2 Based on loaded and empty car-miles.
3 Partly estimated.

than in 1940. Car-mile expenses had meanwhile increased 84.6 per cent, or 6.6 percentage points more than the revenue.

An analysis of the principal expense items for the same years, the bureau continued, shows that depreciation increased 76 per cent, employee compensation 90.9 per cent, fuel and power expense 74 per cent, and other expenses, largely materials and supplies, 75.1 per cent.

Other increases in both revenues and expenses per car-mile are shown in the accompanying table, reproduced from the "Comment." It also includes 1949 data, with comparisons to 1950.

Trucks Move More Coal

The article on transportation of bituminous coal and lignite pointed up the inroads made on this traffic by trucks. Based on 1942 as 100, truck movements in 1948, a year of high production, were up 39.5 per cent; the truck index for that year was 139.5. Rail movements had increased only 3.2 per cent over 1942, and the 1948 rail index was 103.2. Movements by water in the same period were up 5.4 per cent.

The bureau went on to compare, on a percentage basis, the tonnage moved by each of the three carriers. Of the total moved by all of them in 1942, trucks accounted for 9.6 per cent, water carriers 18.1 per cent, and railroads 72.3 per cent. In 1948, the figures were 16 per cent, 17.1 per cent, and 66.9 per cent respectively. In 1949 trucks moved up to 16.5 per cent, the water carriers to 17.4 per cent, and the railroads dropped to 66 per cent.

Figures on freight car and truck purchases for 1950 and the first two months of 1951 were contained in another article in the "Comment." After noting the backlog of freight car orders, the article pointed out that purchases of trucks, particularly in heavier categories, have been high. In 1950, factory sales of trucks in the 16,001-lb. weight class were 113.06 per cent over 1949. In the first two months this year sales in the same category were 110.26 per cent above last year. Sales in the 19,500- to 26,000-lb. class were up 17.3 per cent in January and February, while those in the over-26,000-lb. class were up 113.33 per cent.

N. & W. Holds 26th Better Service Meeting

More than 600 delegates and guests attend sessions

More than 600 employees and guests of the Norfolk & Western attended that road's 26th annual Better Service Conference which was held April 13 and 14 at the Hotel Roanoke, Roanoke, Va. Speakers at the sessions included President R. H. Smith and other N. & W. executives, Dr. Walter A. Flick, chairman of the department of education and psychology at Washington and Lee university, and T. Coleman Andrews, president of the American Institute of Public Accountants.

Most of those in attendance at the meeting were employee delegates representing local Better Service Clubs throughout the N. & W. system. The general chairman was L. C. Yates, general claim agent of the road.

President Smith, who delivered his address at the conference's opening session, was in his Army uniform. Since President Truman seized the railroads in the face of last August's strike threat, Mr. Smith has been on active duty as Colonel Smith, Southeastern regional director in the control set-up established by the Army.

The N. & W.'s outlook for the year ahead is "pretty fair," Mr. Smith said. He pointed out that there is peace in the coal industry, and that some new industries are located on N. & W. lines.

Mr. Smith went on to discuss capital expenditures made by the road in recent years. He put the total of such expenditures during the past five years at $114 million, and suggested that this "should convince anyone that we are in earnest when we say we expect to keep the Norfolk & Western alert and ready to meet any demands."

Meanwhile, however, Mr. Smith emphasized that "facilities alone are not enough," because such modern tools must be used by employees to give customers the "best possible service." The N. & W. president also referred to subsidized competition, expressing his view that the taxpaying public is "waking up" to that situation.

Other Executives Speak

W. J. Jenks, chairman of the board; S. S. Hosp, freight traffic manager; F. M. Rivinus, general counsel, and H. C. Wyatt, assistant general superintendent of motive power, were the other N. & W. executives who addressed the meeting. The latter three spoke, in turn, on "Getting and Holding Business for the Company," "Family Responsibility," and "Equipment and its Performance." Chairman Jenks' talk was a brief greeting to the delegates.

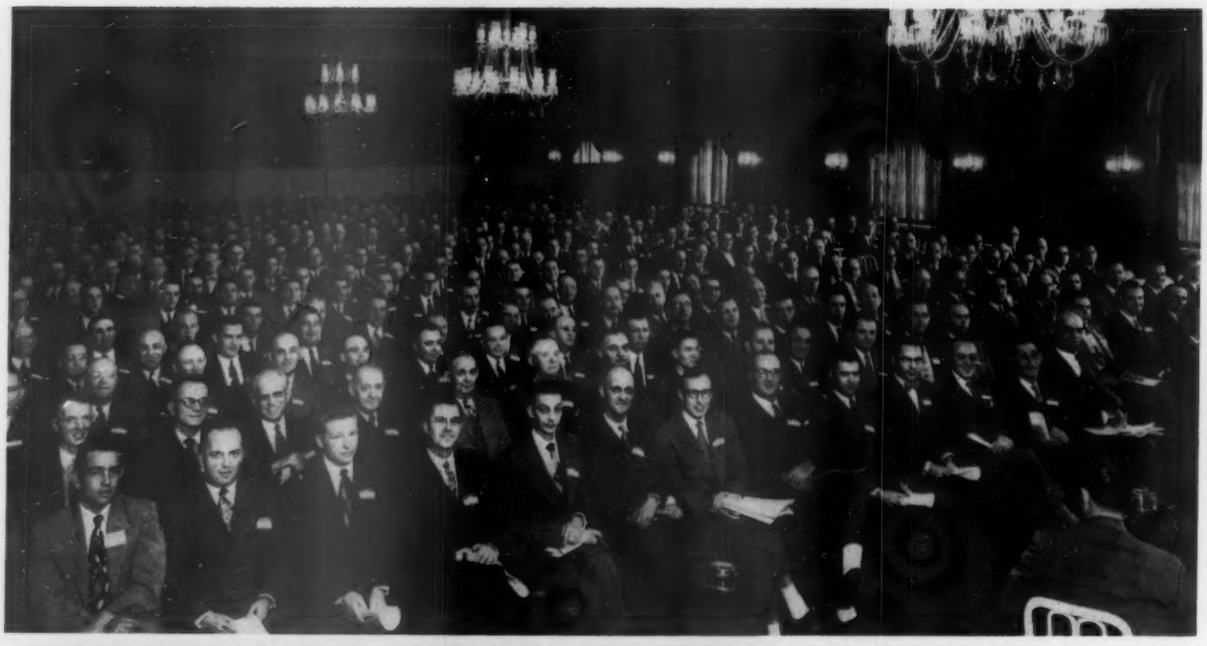
Dr. Flick spoke at the April 13 luncheon session, where he was introduced by S. F. Small, N. & W. vice-president—assistant to president. N. R. Lehmann, assistant vice-president in charge of traffic, acted as toastmaster. Mr. Andrews was the speaker at the same day's dinner session. That

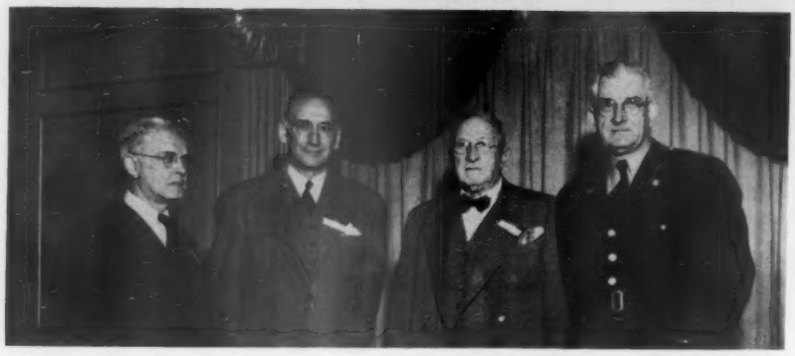
R. V. Wright Essay Contest Offers $1,500 in Prizes

The 1951 Roy V. Wright memorial essay contest of the New York Railroad Club involves $1,500 in prizes—one prize of $500 and 10 of $100 each—for the 11 best essays on the subject: Essential provisions of an adequate national transportation policy.

Although the designated subject was chosen because, as the announcement said, "there is probably no other transportation question to which the right answer, if made effective, would benefit so many people," contestants may write on other subjects. Those wanting to develop another topic are asked to get approval from C. T. Stansfield, executive secretary of the club, 30 Church street, New York 7, to whom essays and other correspondence about the contest should be addressed. Essays must reach Mr. Stansfield no later than next October 1.

Essays in the contest, which is named for the late managing editor of *Railway Age*, should be not less than 2,500 nor more than 7,000 words long. To be considered for prizes, essays must contain internal evidence that the writer has familiarized himself with these two books: "National Transportation Policy," by C. L. Dearing and Wilfred Owen, and "Transportation Conditions and National Transportation Policy," 15 pamphlets containing testimony of railroad industry witnesses before the Senate Committee on Interstate and Foreign Commerce and published by the Association of American Railroads.





More than 600 employees and guests, above, attended the Norfolk & Western's 26th Better Service Conference at Roanoke, Va., on April 13 and 14. Speakers, left, included left to right, L. C. Yates, who was general chairman of the conference, S. S. Hosp, W. J. Jenks and Col. R. H. Smith, president of the railroad

session's toastmaster was W. L. Young, assistant chief engineer of the N. & W.

Other proceedings included adoption of reports presented by the conference's committees on safety—An Important Objective; Transportation — Make Ours Excel; Combat Subsidy of Transportation; Good Citizenship — Our Standard; and The Defense Program—Our Responsibility in It.

Locomotive Builders Asking For Price Increase—Fraser

The American Locomotive Company and other locomotive builders are seeking government approval for a price increase, Duncan W. Fraser, Alco chairman and president, told stockholders at the annual meeting in New York on April 17. The increase, he said, is necessary because of increases in costs for labor, materials and supplies and "it is our belief that a favorable decision will be reached."

The company's net income for the first six months of 1951 is expected to be "only slightly less" than for the first half of 1950, when net income after taxes was $2,758,804, equal to $1.16 a common share, Mr. Fraser said. Alco's backlog of orders now totals $345,000,000, he added, including defense orders of $240,000,000 and $105,000,000 for regular products, compared with $50,000,000 for regular products a little more than a year ago.

Rogers Confirmed For New I.C.C. Term

The Senate on April 12 confirmed President Truman's reappointment of Interstate Commerce Commissioner John L. Rogers for a new seven-year term on the commission. The favorable action came the day after the nomination had been reported favorably from the Senate Committee on Interstate and Foreign Commerce.

There was no Senate discussion of the appointment, confirmation of which had been opposed at committee hearings by the International Brotherhood of Teamsters.

A former director of the commission's Bureau of Motor Carriers, Mr. Rogers has been a commissioner since 1937. His previous term expired at the end of last year, but he has continued to serve under that provision of the Interstate Commerce Act which permits a commissioner to carry on until his successor qualifies.

Carriers and Unions Urge Panel to O.K. Wage Boost

Approval of the six-cents-per-hour wage increase due non-operating employees under the "escalator clause" in their March 1 agreement with the railroads has been urged by both the roads and the unions. They presented their case at an April 13 hearing before the special wage panel appointed by Economic Stabilizer Johnston to study the proposed "cost-of-living" increase.

Members of the panel are William M. Leiserson, Lloyd K. Garrison, and Frank M. Swacker. They were appointed to investigate the case when it was found that April 1 adjustments for the "non-ops," amounting to six cents an hour, would pierce the 10 per cent ceiling authorized for wage agreements entered into after January 25. (See *Railway Age* of April 16, page 47).

George M. Harrison, grand president of the Brotherhood of Railway Clerks, warned the panel that the March 1

contract with the railroads was a "package" agreement, and that it would be invalid if the escalator clause was thrown out. He said the "non-ops" would never have accepted the 12½ cents per hour basic wage increase had the escalator clause not been included in the agreement.

Both Mr. Harrison and the carriers were in agreement as to the decision the panel should make. Daniel P. Loomis, chairman of the Carrier Conference Committee for the Western railroads, presented the case for the carriers. He reviewed the history of wage cases from the early 1930's, up to and including the present one, and asked the panel to consider the "non-op" increase on an "industry-wide basis."

Mr. Loomis noted that contracts with escalator clauses were agreed to last September with the Switchmen's Union of North America and the Railroad Yardmasters of America. Under these agreements, the switchmen and yardmasters received "cost-of-living" increases of 9 cents an hour on April 1. The "non-op" agreement, on the other hand, was made since the January 25 wage freeze was placed in effect and under the 10 per cent ceiling they would be entitled to an additional increase of only 2½ cents an hour at this time.

George E. Leighty, chairman of the Railway Labor Executives Association, and Lester P. Schoene, union attorney, also participated at the hearing, with Mr. Schoene declaring that approval of some contracts with escalator clauses while not approving others would result in "wage chaos" on the railroads. He said the cost-of-living index was injected in railroad agreements by the government "as part of a policy of establishing long term contracts" and thus stability in the railroad industry.

Railroads Intensifying Scrap-Collection Efforts

The railroads are intensifying their efforts to collect and turn back to the steel industry as much scrap metal as possible in order to help increase the production of steel which is urgently needed to support the rearmament program, William T. Faricy, president of the Association of American Railroads, said on April 13.

The construction of new freight cars and locomotives and the keeping in serviceable condition of the maximum number of locomotives and cars now owned are important to this program, Mr. Faricy stated.

Last year, he declared, the railroads turned back an estimated 3,920,000 net tons of scrap to mills and foundries, or almost 12 per cent of all scrap purchased by the steel industry. Although about 12 per cent of total purchased scrap originated on the railroads, they received only about 7 per cent of the rolled steel distributed, he pointed out.

"Railroads have always been one of the largest and most dependable sources of purchased scrap," Mr. Faricy said, "and today when the supply is so critically low and when 3,000,000 more tons will be needed this year than were required in 1950, it is essential that the railroads exert every effort to return to the steel industry as much scrap metal as possible."

"A continuing supply of sufficient steel to build at least 10,000 new freight cars per month and at the same time do a maximum repair job is essential to the nation's rearmament program," Mr. Faricy stated. He also emphasized that it is of equal importance to obtain enough steel to construct at least 400 locomotive units per month.

"This is one important reason why the railroads are taking direct and special steps to do their part in helping to step up steel production," Mr. Faricy concluded.

Express Agency Gets Interim Rate Increase

Rate increases expected to yield the Railway Express Agency additional annual revenue of "not less than $15,715,200" have been approved by the Interstate Commerce Commission in the interim-relief phase of the Ex Parte 177 case. That is the proceeding which involves R.E.A.'s petition for authority to make a general increase on a permanent basis (*Railway Age*, January 22, page 35.)

The interim relief, approved in a commission report dated April 13, will permit addition of a charge of 20 cents per shipment on l.c.l. express traffic—except daily newspapers, milk, cream and related products, and corpses. The R.E.A. had proposed an interim-relief charge of 25 cents per shipment with the same exceptions. It estimated that the annual-basis yield would be $19,644,000.

The proposal was based on increases in wage costs, amounting to more than $20,000,000 per year, which have occurred since April 18, 1950, the effective date of the latest previous general increase in express rates. The biggest wage increase of the period was the raise, with an annual-basis cost of $10,900,000, which was granted to R.E.A. employees March 2, after the railroads had settled with their non-operating employees.

The R.E.A. agreement, like the "non-op" pact, includes an escalator clause providing for additional increases with rises in the cost of living. The commission did not consider that situation, except to suggest that it could be given "appropriate weight" in its report on R.E.A.'s permanent rate proposal.

In refusing to approve the 25 cents per shipment proposed by R.E.A., the commission noted that there have recently been some increases in express rates; and that an overall advance of 20 per cent in rates on air-express shipments became effective March 21—although the proportion of the latter which will go to R.E.A. "is not disclosed."

The report went on to find the 20-cent increase "just and reasonable." And the accompanying order authorized publication of tariffs carrying the increase on 15-days notice.

Findings of the report are "without prejudice" to conclusions which may be reached by the commission with respect to R.E.A.'s permanent rate proposal. The report also noted that Commissioners Alldredge and Mitchell did not participate in the present decision.

Ore to Move by Rail During Summer

Iron ore will continue to move by rail during the summer months, according to an announcement by the Oliver Iron Mining Company at Duluth, Minn. President R. T. Elstad said the company has made up schedules calling for 400 to 500 cars a day from the Gogebic and Mesabi ranges to the Pittsburgh, Pa., Youngstown, Ohio, and Chicago plants of the United States Steel Corporation, as well as to other steel producing plants.

The all-rail ore movement will supplement normal traffic handled in Great Lakes steamships. Those vessels will probably be able to handle a larger tonnage this year than last due to the earlier opening of navigation (*Railway Age*, March 26, page 54), but because of the "intense" demand for iron ore for both defense and essential civilian production, the rail routes will probably handle more than four million tons, Mr. Elstad said.

Pullman Company Seeks 15% Increase in Fares

The Pullman Company has applied to the Interstate Commerce Commission for authority to increase by 15 per cent its sleeping and parlor car rates, fares and charges. The petition was filed with the commission April 13, and has been docketed as Ex Parte No. 180.

This proposed rate increase, based on 1950 traffic volume, would yield additional gross revenue of $16,743,195 a year, the company said. It added that this would offset increased costs only in part, but that a greater increase could not be applied without impairing the volume of business. The last Pullman increase was placed in effect October 1, 1947.

In 1950, gross revenue was 7.87 per cent below 1947, the petition said. Meanwhile, average daily compensation per employee has increased 25.4 per cent, the price index for materials and supplies has gone up 14 per cent, and depreciation and car rental charges paid by Pullman to the railroads have increased 72.1 per cent, reflecting purchase of 1,343 new cars by the roads in the 1947-1950 period. Altogether, the company said its expenses in 1950 were $26,609,545 above those of 1947, with labor costs alone accounting for some $19 million of this increase.

"Based on 1950 volume of business

and on increased expenses which petitioner would incur in 1951, petitioner would have a deficit in net revenue of $29,063,135 under existing tariff rates," Pullman said. The railroads would pay the company $30,251,797 in net contract settlement, as compared to a payment of $17,804,033 for 1950.

Primarily because of the recent wage boost of 12½ cents an hour, cost of escalation and higher material prices, Pullman's 1951 expenses will be increased by $15 million over 1950, its president, Carroll R. Harding, explained, adding that Pullman has effected only four general rate increases in the past 45 years.

The company plans to place similar petitions before the various state commissions where intrastate sleeping and parlor car lines are operated.

N.Y.C. Again Extends Rail-Truck L.C.L. Service

Coordinated rail-truck service to expedite l.c.l. merchandise freight each way between Kingston, N. Y., and 27 New York communities north and south of that point has been established by the New York Central on its West Shore (River division) line. Saving one or more days in shipping time, truck routes will be operated to provide the new service, making a same-day link between those outlying freight stations and the key transfer station at Kingston.

This new operation will give complete substituted trucking service to and from all points on the West Shore's main line between Jersey City, N. J., and Albany, N. Y. The service was installed earlier this year from Jersey City to all communities as far as Congers, N. Y. Newburgh, N. Y., will continue to have its own direct, daily merchandise service by railroad car.

One new truck route will serve Mount Marion, Saugerties, Malden-on-Hudson, Alsen, and Catskill. A second route will serve West Athens, Coxsackie, New Baltimore and Ravena. A third route will serve Port Ewen, Ulster Park, Esopus, West Park, Highland, Milton, Marlborough, Roseton, Cornwall and West Point. The fourth route will serve Highland Falls, Fort Montgomery, Iona Island, Jones Point, Tompkins Cove, Stony Point, West Haverstraw and Haverstraw.

End Asked to New York Rail Rate Differentials

A program "to help restore New York's position in competition with other Atlantic and Gulf ports from the standpoint of railroad rates" was made public on April 17 by John J. Bennett, chairman of the city's planning commission and of the mayor's port committee. The program—prepared by the port committee's subcommittee No. 3, headed by Howard S. Cullman, chairman of the Port of New York Authority—urged Mayor Vincent R. Impelliteri to initiate discussions with New York transportation executives on the possibility of eliminating rate disadvantages said to be hurting the city's commerce.

Railroads were asked to eliminate increases in prewar port differentials caused by postwar rate rises and to abolish entirely all port differentials. It also was proposed that railroads reduce or eliminate heavy lift charges and reduce transfer charges on l.c.l foreign freight. The report further recommended, but reportedly without approval of two railroad representatives on the subcommittee, that New York railroads cooperate with the state's canal carriers in rates and commerce.

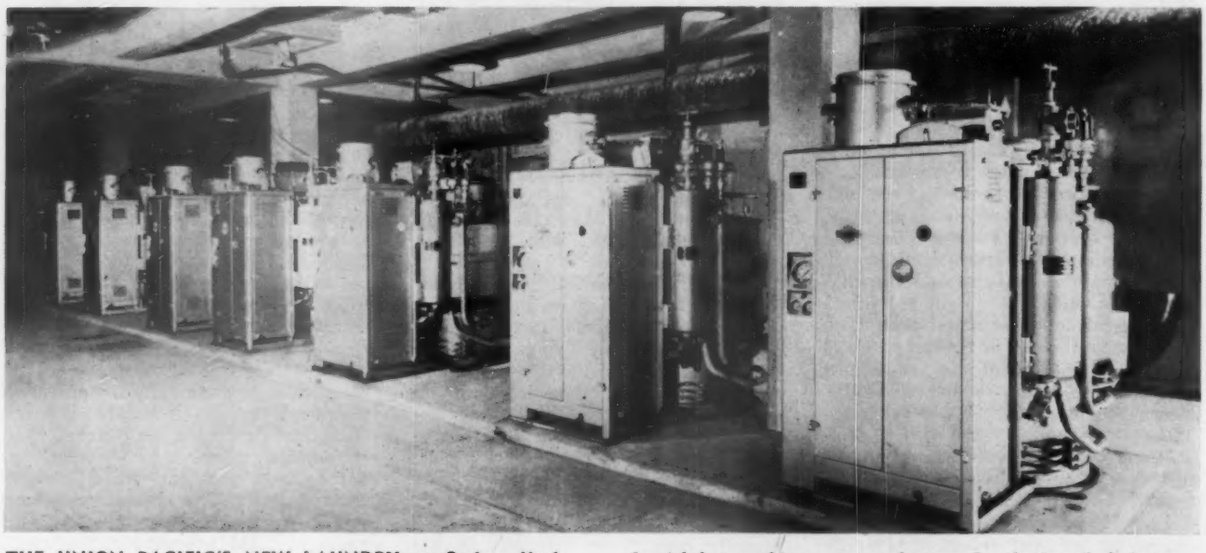
Subsidization of the Federal Barge Line on the Mississippi river was opposed in the report, as were navigation features of the St. Lawrence seaway project.

Ex Parte 175 Hearings Are Set For May 14

Hearings on the amended railroad petition for a 15 per cent increase in freight rates will be held by the Interstate Commerce Commission beginning May 14. The commission's Division 2, consisting of Commissioners Aitchison, Mahaffie, Splawn, and Alldredge, will conduct the hearings, which will be held in Washington, D. C.

"It is contemplated that at this hearing testimony will be produced on behalf of the petitioners and others in their behalf, and also testimony of a general or national character on the part of any party," the commission said in announcing the hearings. It added that testimony will also be received with respect to particular commodities by parties who are prepared to proceed at that time. The proceeding is docketed as Ex Parte No. 175.

In a separate notice issued the same day, the commission granted the railroads permission to amend their original petition of January 16, 1951, which had asked for a 6 per cent increase, and substitute new proposals amounting to a 15 per cent increase. The roads



THE UNION PACIFIC'S NEW LAUNDRY at Ogden, Utah, will handle all linen from the road's passenger trains, plus that from Sun Valley and other hotels and restaurants of the system, except for the southern Utah parks property. Laundering machinery is being installed this month and full operation is expected by mid-summer. Seven Vapor-Clarkson steam generators (shown above) have been installed to furnish hot washing water and steam for the laundry's battery of appliances, which includes eight washers, three extractors, four flatwork ironers, three dryers, 12 tumblers, 42 press units, six folders, three tieing machines, two continuous belt conveyors, a stacker and a mono-rail conveyor system for laundry baskets. The new plant will have capacity to handle 3,300 lb. of dry laundry every hour

had filed an amended petition March 28. (See *Railway Age* of April 2, page 63).

Special instructions and rules of procedure in connection with the hearings have been issued by the commission. Among other things, evidence in the form of verified statements on behalf of the petitioners and those supporting them should be filed with the commission on or before April 30. Similar evidence on behalf of protestants is due at or before the opening of the hearings. It was also asked that persons desiring to take part in the hearings notify the commission before May 8.

The National Industrial Traffic League has scheduled a special meeting of its entire membership to be held in Chicago May 11 "to determine the league's further policy" in the Ex Parte 175 case.

Court Passes on I.C.C. Procedure in Motor Case

By a per curian decision handed down April 16, the U. S. Supreme Court sent back to the lower courts a case involving Interstate Commerce Commission procedure in granting motor carrier certificates. The case was that of *Riss & Co. v. United States.*

In the case Riss contended that the I.C.C. failed to follow the separation-of-functions provisions of the Administrative Procedures Act when it permitted an employee of the Bureau of Motor Carriers to serve as an examiner in a proceeding wherein the bureau intervened to oppose the granting of a motor carrier certificate.

Reversing the judgment of the District Court for the Western District of Missouri, which had upheld the commission, the Supreme Court cited its decision in *Wong Yang Sung v. McGrath.* This decision, handed down last year, invalidated a deportation order after finding that procedures leading to the order did not conform to the separation-of-functions provisions of the Administrative Procedures Act. (See *Railway Age* of March 18, 1950, page 83).

The present case dates from 1947, when Riss filed for authority to extend certain of its operations. Hearings were held in November and December, 1947, and again in May 1948. At the latter hearing, Riss said it learned the examiner hearing the case was in reality an employee of the Bureau of Motor Carriers, while the bureau was a party to the proceeding actively opposing Riss. The company said further proceedings were held over its objections.

The examiner subsequently recommended denial of the Riss application, and this view was adopted by the commission's Division 5. The company appealed the case to the Missouri district court on grounds that an applicant for a certificate to operate a motor vehicle is entitled to a hearing and decision in accordance with the Administrative Procedures Act.

The three-judge court dismissed the complaint, and adopted the commission's view that an application under section 207(a) of the Interstate Commerce Act is not required by statute to be determined on the record after hearing. Since the Riss application fell under that section it was held that the case was not one required by section 5 of the Administrative Procedures Act to be heard and decided in conformity with sections 7 and 8 of that act.

Railway Age Wins Freedoms Foundation Award

The Republic Steel Corporation, which won first place in the general awards category, was among more than 800 American individuals and organizations which received freedom awards from the Freedoms Foundation "for outstanding contributions to freedom" during 1950.

Honor medals in the same category were presented to *Railway Age* "for its forthright articles in behalf of freedom vs. socialism," and to the Transportation Association of America for its "overall economic education program under the association slogan of 'Dedicated to private ownership and management of property.'"

Second place in the national advertising campaigns category was awarded to the Norfolk & Western. Honor medals were presented to the Texas & Pacific and the Southern in the regional advertising campaigns category. Fred G. Gurley, president of the Atchison, Topeka & Santa Fe, received a third place award in the college commencement addresses group. In the company employee publication class a third place award was won by the Louisville & Nashville Magazine and the Southern's Ties was given an honor medal. Texas & Pacific President W. G. Vollmer was one of the recipients of fourth place awards in the public addresses category.

D.P.A. Makes June Allocations of Steel

Allocations of steel products in quantities which are expected to be sufficient for the construction in June of about 10,000 freight cars and 325 locomotives have been made by the Defense Production Administration. The allocation for domestic freight car construction is 308,000 tons, while the allocation for locomotives is 40,000 tons.

There are also allocations for the construction of railroad equipment in Canada — 8,000 tons for freight cars and 2,800 tons for locomotives. "This steel," D.P.A. announcement said, "is needed to augment various steel mill products which are produced in Canada only in limited quantities: The Canadian government has already imposed tighter restrictions on use of steel than has the United States."

As for the domestic program, the announcement had this to say: "The freight car program includes 850 tank cars needed to augment the fleet used to transport such products as petroleum, chemicals and alcohol . . . It will also make available approximately 4,000 replacements for cars that are expected to wear out and be removed from service during the month and add 6,000 to the total supply. The U. S. locomotive program is designed to provide 320 new diesel and five new steam locomotives during June. . . ."

Production of steel rails, the announcement also said, "was authorized at full capacity of the industry." Other allocations for the construction of transport equipment and facilities include those for the building of Great Lakes vessels, for towboats for operation on inland waterways, and for highway maintenance and construction. The latter involves an allocation of 151,000 tons of steel.

As for the tank-truck program, it was "promised spot assistance, when necessary, in obtaining steel for the production of 460 vehicles, up to a ceiling of 2,000 tons. . . . "

As the announcement pointed out, the programs here involved will come under the Controlled Materials Plan when that plan becomes effective July 1. (See *Railway Age* of April 16, page 48.)

Crosser Bill Would Liberalize Retirement Act

Liberalization of the Railroad Retirement Act's benefit provisions is proposed in a bill, H.R. 3669, which has been introduced in the House by the chairman of its Committee on Interstate and Foreign Commerce, Representative Crosser, Democrat of Ohio. In introducing the bill, Mr. Crosser explained that it had been written "after many consultations with experts of the Railroad Retirement Board and officials of the Railway Labor Executives' Association."

To raise money for the more liberal benefits, the bill would increase from $300 to $400, the amount of monthly wages taxable under the Carriers Taxing Act. Thus the taxes of all employees earning more than $300 a month would be increased, with those in the $400-or-more bracket being hit by an additional monthly levy of $6.25. Matching taxes paid by the carriers would of course, go up in like manner.

Among the proposed modifications of benefit provisions would be those increasing annuities by about 13.8 per cent. Also there would be included in the Railroad Retirement System, for the first time, spouse benefits equal to one-half an employee's annuity but not more than $50 a month. Another prospective aid to bigger annuities is the bill's proposal to credit service performed after the age of 65 years.

Still other provisions of the bill would liberalize survivor benefits, and add a so-called work clause. The latter would make one earning $50 or more per month ineligible to continue receiving an annuity.

A substantial amount of integration with the general Social Security

System is also proposed. That proposal contemplates a joint report by the Retirement Board and Federal Security Administrator with recommendations as to legislation necessary "to place the Federal Old Age and Survivors Insurance Trust Fund in the same position in which it would have been if service as an employee after December 31, 1936, had been included in the term 'employment' as defined in the Social Security Act and in the Federal Insurance Contributions Act."

Seemingly, the idea would be to have the Retirement Board bill the Social Security System for that part of a railroad employee's annuity that was equivalent to what the employee would have got if he were under the Social Security System. In paying the bill, the Social Security System would be entitled to a credit equal to the taxes it would have collected from the employee if he had been under that system. Presumably, the sponsors anticipate that the railroad system would come out ahead on such transactions.

A companion bill, S.1347, was introduced in the Senate on April 18 by Senator Murray, Democrat of Montana, on behalf of himself and a group of 11 other senators. Mr. Murray is chairman of the Senate Committee on Labor and Public Welfare, a subcommittee of which is scheduled to hold hearings April 27 on all Senate bills proposing to amend the Retirement Act. Senator Douglas, Democrat of Illinois, is chairman of the subcommittee.

"Jack" Walsh Retires; Was N.M.B.'s Senior Mediator

John W. Walsh, senior member of the National Mediation Board's staff of mediators, retired on April 1, after 33 years of service with government agencies handling railroad labor relations matters. Mr. Walsh served, in turn, with the division of labor of the United States Railroad Administration, the United States Railroad Labor Board, and, since 1926, as mediator under the Railway Labor Act.

Commenting on Mr. Walsh's retirement, N.M.B. Secretary Thomas E. Bickers made this statement: "Jack Walsh, in his long years of service, made a substantial contribution in the railroad labor relations field. Many of the existing agreements with the non-operating groups incorporate principles in the pioneering of which he played a prominent part. Few men have had broader experience or acquaintanceships in this field."

Macfarlane Will Participate In U. S. Chamber's Meeting

Robert S. Macfarlane, president of the Northern Pacific, will be the railroad-industry member of a panel which will discuss transportation at the annual meeting of the Chamber of Commerce of the United States. The meeting will be held at Washington, D. C., from April 30 through May 2, and the transport session will be held May 1 at the Statler Hotel.

Other participants will be D. W. Rentzel, under secretary of commerce for transportation; A. G. Anderson, president, National Industrial Traffic League; R. W. Budd, president, Great Lakes Greyhound Lines; Ralph Damon, president, Trans-World Airlines; Leland James, president, American Trucking Associations; and John Slater, president, American Export Lines.

D.T.A. Amends Grain Order

The Defense Transport Administration issued General Order DTA-2, as amended, effective April 17, clarifying and extending the regulation and allocation of port terminal facilities for the handling of grain.

This order, issued March 1, has made

Knudson Explains and Defends Call For Easing of Truck Rules

Speaking recently at Boca Raton, Fla., before a meeting of the National Tank Truck Carriers, Inc., Administrator James K. Knudson of the Defense Transport Administration made a statement in further explanation and defense of the March 8 letter which he wrote to governors of the 48 states. As reported in *Railway Age* March 19, page 71, the letter called upon the governors to cooperate in bringing about elimination of "unjustifiable highway transport barriers." Administrator Knudson's explanatory statement included the following:

"Our proposal . . . that an objective view be taken with respect to highway sizes and weights for as long as the national emergency strains our domestic transport capacity . . . was carefully and clearly stated, and, I submit, not susceptible to interpretations placed upon it in some quarters.

"Here is the essence of my appeal to the governors:

"(1) The nation is confronted with a national emergency, the duration of which no one can accurately forecast.

"(2) Reasonable and productive techniques for getting maximum efficiency and equipment utilization in railroad freight operations are being practiced, but the freight car shortage persists at a level unprecendented in American history.

"(3) Inland waterway transport facilities are over-taxed.

"(4) In many areas, motor transport is unable to move the burden of traffic.

"(5) The amount of traffic to be moved is growing daily under the impetus of expanded production of essential military and civilian goods and disruptions of production of the most serious implications will result unless transportation capacity is quickly expanded to catch up with present needs and to meet foreseeable essential requirements.

"(6) Everything that can be done to expand rail transport capacity is being done. New freight cars are being built but real relief in that area is two years away. New trucks are entering service but the needs of traffic to be moved require that we get more work out of the trucks and trailers we have.

"(7) We ask, for the duration of the 'tight' transportation situation, that motor trucks be permitted to carry weights up to the total weights which can be carried without damage to the highways. Not more—but that much. We favor uniformity in regulations, but for the moment the nation can ill afford to sacrifice, for uniformity's sake, the ability of some roads — demonstrated by usage and authorized in existing state laws — to bear greater weights than those recommended in the code of the American Association of State Highway Officials. And where scientific, engineering tests prove . . . that given roads or road systems . . . can handle heavier loads, without damage to the roads, we propose that the heavier weights be authorized by the states for the duration of the emergency. Where similar tests show that particular roads cannot, without destruction, bear greater weights than those proposed in the uniform code, obviously, heavier loads should not be permitted.

"Those seven numbered points summarize or paraphase my letter to the governors. . . .

"It has been said that I have been unduly influenced by those members of our staff who have patriotically absented themselves from their careers in the trucking industry to render service for their country. It might be as readily said that in giving first priority to the freight car building program I was unduly influenced by the fine railroad men on our staff who incidentally are making an equal sacrifice so that the government might use their time and talents in these perilous times. But . . . my appeal to the governors was an action conceived and directed by myself alone. It was a carefully considered action premised on facts.

"We condemn persistent and willful overloading of trucks. In my book, such an offender should have his franchise taken away and his trucks denied the use of the highways. I favor strict observance and unrelenting enforcement of laws respecting maximum weights of motor vehicles.

"I advocate no program that would destroy our highways. I favor observance and enforcement of existing weight and size regulations. And as long as our country remains in peril, we must get the full capabilities of every mile of highway essential in moving goods vital to our defense and our way of life."

grain storage space at port terminals subject to a system of permits. As originally issued, it applied only to grain for export and for domestic sale or use, but, as amended, it covers the handling of grain in connection with coastwise and intercoastal movement, and grain import shipments.

Elmo E. Ferrari, director of D.T.A.'s Port Utilization Division, will administer the amended Order. He succeeds H. K. Osgood, head of D.T.A.'s Warehousing and Storage Division, who temporarily administered port terminal matters.

L.I. Gets Fare Rise

The Long Island has been authorized by the New York State Public Service Commission to increase its commuter fares by 20 per cent and its basic one-way coach fares by 12½ per cent. Additional revenues of $4,600,000 a year is expected to result from the increases, the commission said. The commission's decision said the road's revenue has been "far behind its expenses."

Freight Car Loadings

Loadings of revenue freight in the week ended April 14 totaled 777,989 cars, the Association of American Railroads announced on April 19. This was an increase of 38,466 cars, or 5.2 per cent, compared with the previous week; an increase of 70,604 cars, or 10.0 per cent, compared with the corresponding week last year; and an increase of 12,046 cars, or 1.6 per cent, compared with the equivalent 1949 week.

Loadings of revenue freight for the week ended April 7 totaled 739,523 cars; the summary for that week, as compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, April 7

District	1951	1950	1949
Eastern	135,976	130,180	138,939
Allegheny	154,700	148,321	162,917
Pocahontas	53,054	63,349	63,097
Southern	131,807	125,912	121,020
Northwestern	83,567	68,501	111,662
Central Western	120,470	108,051	106,701
Southwestern	59,949	55,735	53,448
Total Western Districts	263,986	232,287	271,811
Total All Roads	739,523	700,049	757,784
Commodities:			
Grain and grain products	49,071	39,049	42,130
Livestock	7,717	7,752	8,568
Coal	121,944	157,571	157,536
Coke	14,983	13,333	14,932
Forest products	47,827	37,262	35,836
Ore	21,699	13,559	60,932
Merchandise l.c.l.	82,789	86,836	96,404
Miscellaneous	393,493	344,687	341,446
April 7	739,523	700,049	757,784
March 31	755,435	720,404	725,623
March 24	748,804	717,259	596,329
March 17	745,365	725,534	607,922
March 10	749,627	707,911	709,326
Cumulative total 14 weeks	10,233,729	8,824,054	9,714,095

In Canada.—Car loadings for the week ended April 7 totaled 79,740 cars, compared with 79,218 cars for the previous week, and 63,688 cars for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 7, 1951	79,740	37,992
April 8, 1950	63,688	33,508
Cumulative totals for Canada:		
April 7, 1951	1,041,688	509,215
April 8, 1950	958,272	418,678

Rentzel Confirmed; States His Views on Transport

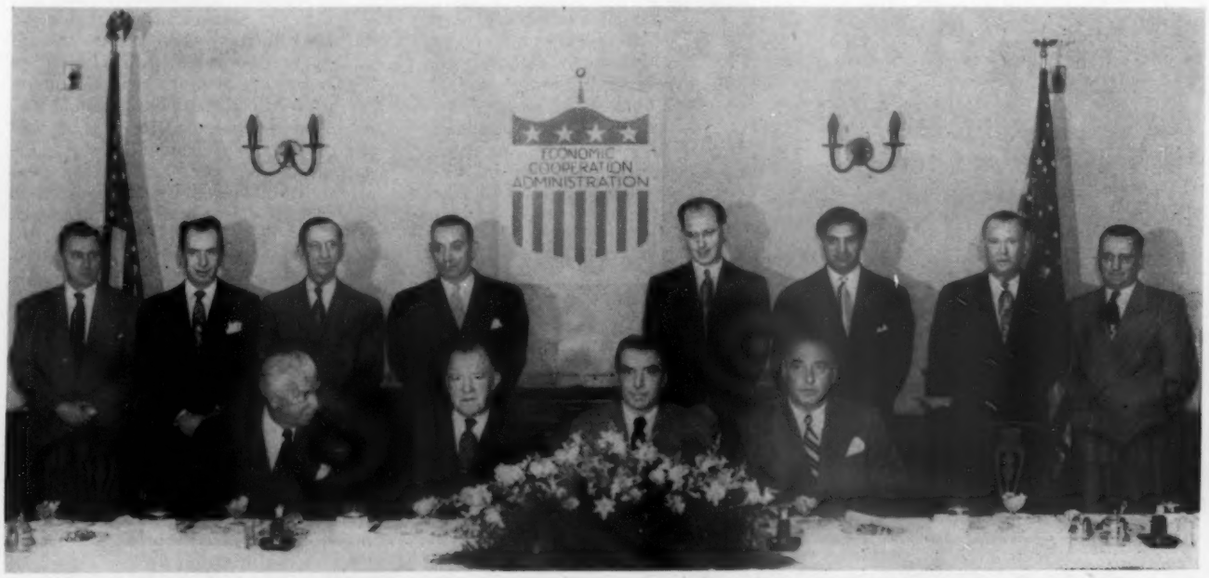
The appointment of Delos W. Rentzel to be under secretary of commerce for transportation was confirmed by the Senate on April 17. Mr. Rentzel succeeds Major General Philip B. Fleming in the Commerce post, General Fleming having been named ambassador to Costa Rica.

Prior to his approval by the Senate, Mr. Rentzel submitted to the Committee on Interstate and Foreign Commerce his answers to a list of questions submitted to him earlier by Senator Johnson, Democrat of Colorado, chairman of the interstate committee.

Among other things, Mr. Rentzel told the committee that as under secretary he would have no authority over the Interstate Commerce Commission, but that he would expect to appear before the commission "in cases involving major policy issues."

Replying to a question on mobilization activities, Mr. Rentzel said he anticipates "close coordination" between his office and that of the administrator of the Defense Transport Administration. He noted that the under secretary's role in defense transportation "is primarily concerned" with air and maritime matters.

One of the questions asked Mr. Rentzel was whether, as chairman of the newly formed Committee on Defense Transportation and Storage in the Office of Defense Mobilization, he expected to be in a position to influence the construction and delivery of box cars "necessary to solve the shortage." Mr. Rentzel re-



OFFICIALS OF THE BOROUGH OF WILMERDING AND THE WESTINGHOUSE AIR BRAKE COMPANY at a luncheon held on April 10 in conjunction with presentation to the company of a Certificate of Cooperation from the Economic Cooperation Administration of the Marshall Plan. Seated (left to right), are Herbert A. May, senior vice-president, Westinghouse Air Brake Company; Charles H. Klausing, burgess of the borough of Wilmerding; William C. Landis, vice-president, Westinghouse Air Brake Company, toastmaster; and Edward O. Boshell, chairman and president, Westinghouse Air Brake Company. Standing (left to right), are Councilmen Patrick Cahill, Edward T. Barrett, William A. Potter and George Nesta; Matthew Wojton, secretary of the council; and Councilmen Carmine Botti, John H. Mason and Howard Alexander

ONE OF THE EARLIEST U.S.O. LOUNGES TO BE "REACTIVATED" in any of the country's big city railroad stations was this busy corner in Chicago's Grand Central Station, which is utilized by the Baltimore & Ohio, the Chesapeake & Ohio, the Soo Line and the Chicago Great Western

plied that the problem "is now under consideration" by the committee and "steps are now being taken which we hope will greatly improve the situation."

Mr. Rentzel was also asked if he felt it desirable, now or in the future, that other federal transportation activities be brought within the Department of Commerce. He said he hesitated to express opinions on "general desirability" in the absence of any specific proposal "which can be evaluated on the merits."

When the Senate approved Mr. Rentzel's nomination on April 17, it also confirmed that of Charles Horne as administrator of the Civil Aeronautics Administration, and Donald W. Nyrop to succeed Mr. Rentzel as a member of the Civil Aeronautics Board.

Trucker and Railroad Fined in District Court

The Interstate Commerce Commission has announced that on April 9, in the U.S. District Court at Pittsburgh, Pa., Pittsburgh Haulage, a motor carrier, and the Baltimore & Ohio were fined $2,700 and $3,500, respectively, after they entered separate pleas of nolo contendere to an information charging each with violating Part II of the Interstate Commerce Act.

According to the commission notice, Pittsburgh Haulage was charged with obtaining unauthorized control and management of another motor carrier, and with maintaining such control and management without approval and authority of the commission. It was also charged with having operated as a common carrier of property by motor vehicle without having a certificate authorizing the particular operations described in the information. The B.&O. was charged with "aiding and abetting Pittsburgh Haulage in said unauthorized operation."

Anti-Corrosion Compound Developed by C.N.

A new anti-corrosion compound developed and proved by Canadian National research men is being tested on three refrigerator cars, according to S. W. Fairweather, vice-president, research and development. If results obtained in laboratory tests, which indicate the inhibitor is capable of arresting 78 to 95 per cent of the corrosive action of brine and water, can be duplicated in actual operations, it is expected that annual savings in cost of refrigerator-car maintenance will reach $500,000. The inhibitor is composed of sodium hexametaphosphate and powdered calcium chloride and is placed in car bunkers in proportion to amounts of ice and brine. Because it is only partially expended in the refrigeration process, the surplus inhibitor will tend to reduce corrosion of track and bridge structures caused by brine and water drip.

Last Call for Nominations For N.D.T.A. Award

The National Defense Transportation Association on April 12 issued a "final call" for nominations for its National Defense Transportation Award of 1950. The award is made annually to the individual deemed by the judges to have made the most outstanding contribution in the year under consideration to the advancement of defense or military transportation.

May 1 is the deadline for nominations, which must arrive by that date at N.D.T.A.'s headquarters—930 F street, N. W., Washington 4, D. C. Blanks for entry of the nominations may be obtained from any of N.D.T.A.'s 51 chapters in the United States and abroad. Winner of the 1949 award was Captain V. C. Farrell, inventor of the "rolling wing deck," which is an arrangement of mechanized decks within the holds of ships.

P. A. Hollar Assumes Commerce Post

P. A. Hollar on April 16 took his oath of office as deputy under secretary of commerce for transportation. He was sworn in by Secretary of Commerce Sawyer.

The under secretary for transportation is Delos W. Rentzel whose appointment to that position was confirmed by the Senate on April 17. Mr. Hollar's appointment to the deputy under secretaryship, a new position, had been anticipated for some time (see *Railway Age* of April 9, page 60).

A vice-president of the American Car & Foundry Co., Mr. Hollar has been on leave since last October—serving as consultant to Administrator James K. Knudson of the Defense Transport Administration. He was formerly assistant to the vice-president, Operations and Maintenance Department, Association of American Railroads.

Norton Explains Proposal For Graduated Per Diem

"To cling to the single per diem rate is to negate the argument so frequently advanced that this single rate should be increased to the point where it would induce the building of new freight cars," Henry K. Norton, trustee of the New York, Susquehanna & Western, said in a memorandum subto the General Committee of the Association of American Railroads at Chicago on April 18. The memorandum, actually presented by Lawrence Richardson, assistant general manager of the Susquehanna, explained and amplified the proposal for a graduated per diem rate of from $1.20 to $2.00, depending on car age, which was originally advanced by Mr. Norton in a March 16 letter to A.A.R. President William T. Faricy. (*Railway Age*, March 26, page 59.)

"Per diem," Mr. Norton's memorandum said in part, "has been accepted by debit roads with the understanding that it covers cost of ownership with no element of profit. A single per diem rate cannot be raised to the point where it will cover the cost of building new freight cars at today's prices without carrying an increasing element of profit to roads owning most of the present fleet of freight cars, which were built and are being amortized under quite different price levels from those prevailing today.

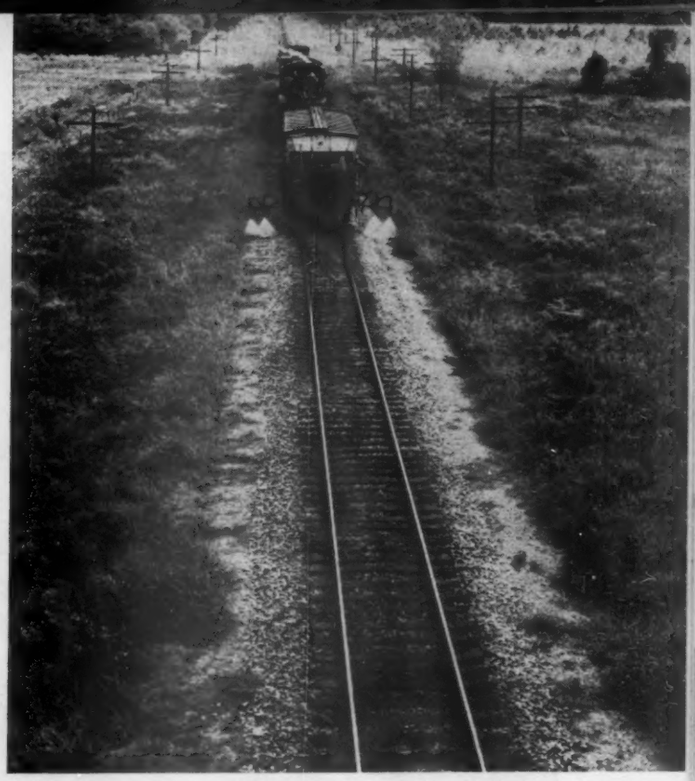
"We have both a shortage of cars and an inequity to debit roads. The present rate is not high enough to cover the building of new cars and is inordinately high for the old ones."

Pointing out that per diem was in-

(Continued on page 45)

LONG-RANGE WEED CONTROL PROGRAM GIVES CLEAN TRACK AT DIMINISHING ANNUAL COSTS

General Chemical offers tailor-made program for maintaining weed-free ballast . . . enables road to achieve clean track immediately with continuous reduction in regrowth.



Spray train operating in southwest territory. General Chemical's Weed Control Service provides modern spray trains and highly trained technicians.

Out of its extensive background in handling individual railroad weed problems, General Chemical has developed a modern method of control which now enables a road to achieve clean track immediately . . . with a continuous reduction in root growth, coupled with diminishing costs.

Such results are obtained by a two- or three-year program following an application schedule *especially tailored to overcome each road's particular weed problems.*

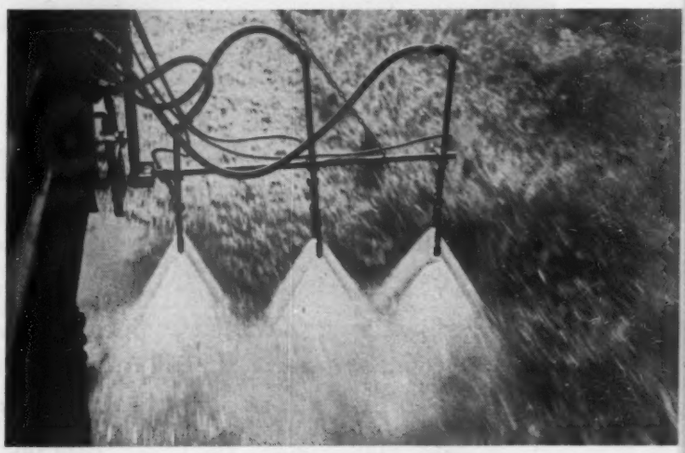
Aimed at control of perennial root systems, General's scientific method assures killing off of long established perennials; continually reducing amount of regrowth year after year; eliminating heavy seed germination; and preventing outside encroachment in subgrade. With this thorough method, track can be maintained in a relatively weed-free condition with minimum dosages!

While initial costs may be somewhat greater than for temporary annual relief, such a high level of continuing control is achieved that the over-all long-range costs are far less and lead to increased savings. The end result is track which can be kept weed-free year after year with the smallest possible budget.

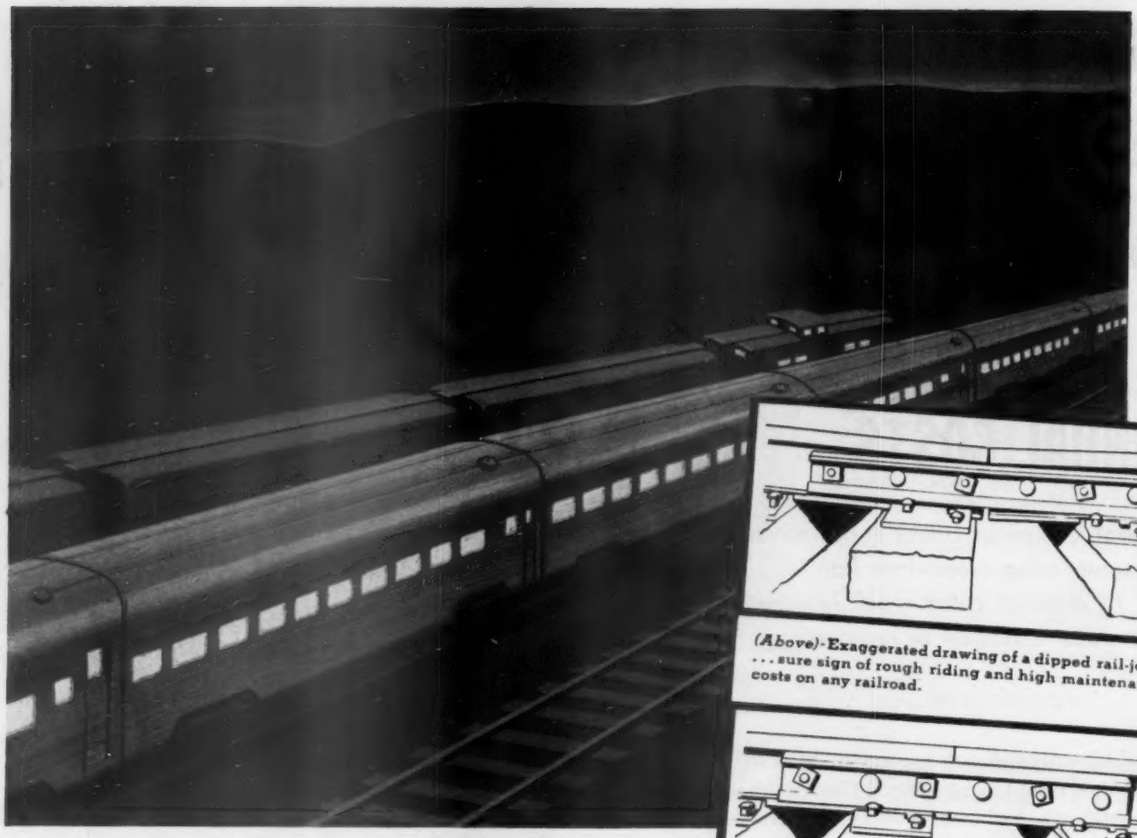
Important Information Available—

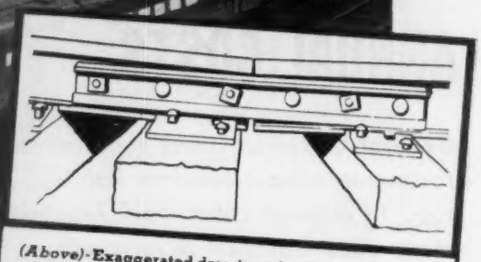
To help railroad managements in planning their weed control programs, General Chemical has just published a descriptive portfolio "A Policy Decision in Railroad Weed Control". Outlining General's method of treatment, it contains full color illustrations of results achieved in northern and southern areas. Copies may be obtained by writing on business letterhead to Weed Killer Department, General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

Duplex spray system gives complete control for all conditions. Two sets of remote-controlled spray heads permit instant application of correct dosages for any type of weed growth and track conditions encountered.

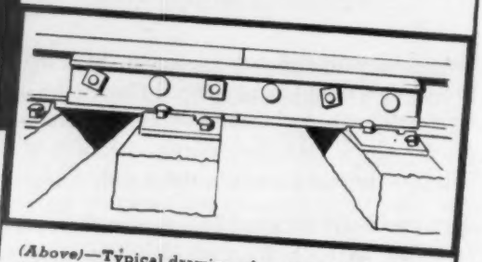


Main line track in central Illinois shows typical results. Sub-grade and berm received a single treatment for two successive years. Now cleared of root systems of Goldenrod, Perennial Sunflower, Bracken, Dogbane, other weeds.



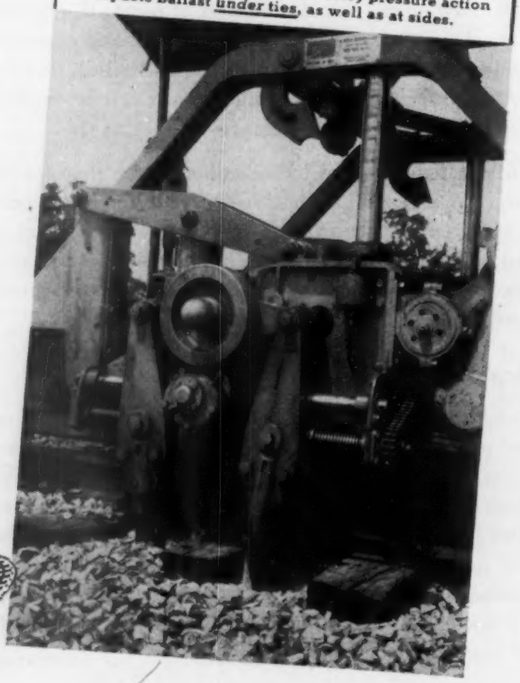


(Above)-Exaggerated drawing of a dipped rail-joint . . . sure sign of rough riding and high maintenance costs on any railroad.



(Above)—Typical drawing of a rail-joint brought to exact level *to stay* with the individually operated tamping arms of the Matisa Tamper.

(Below)—Tamping shoes of Matisa Tampers *do not* pound ballast to powder—vibratory pressure action compacts ballast *under ties*, as well as at sides.



SMOOTH RUNNING ON *Matisa*-TAMPED JOINTS

LEVEL track and smooth joints speed schedules, save track and equipment maintenance, make passengers rail travel boosters . . . And this is the track you get with Matisa precision tamping . . . The only power tamper available that compacts while vibrating *under ties* for level joints and rails that *stay level.*

Write to our M. W. Engineering Department for full details.

THE MATISA EQUIPMENT CORP.
224 South Michigan Blvd. • Chicago 4, Illinois

ALL OVER THE WORLD
Matisa TRACK MAINTENANCE SPECIALISTS

Car Surpluses and Shortages

Average daily freight car surpluses and shortages for the week ended April 14 were announced by the Association of American Railroads on April 19 as follows:

	Surplus	Shortage
Plain Box	0	10,815
Auto Box	5	179
Total Box	5	10,994
Gondola	63	2,924
Hopper	1,574	799
Covered Hopper	0	21
Stock	871	104
Flat	0	1,076
Refrigerator	4,495	53
Other	229	25
	7,237	15,996

(Continued from page 42)
creased by 75 per cent between 1945 and the end of 1950, while freight rates went up an average of only 57 per cent, Mr. Norton declared that, "by private action," car owning roads "have nullified the decision of the Interstate Commerce Commission by increasing their own revenues by more than 57 per cent and reducing the revenues of debit lines by a corresponding amount." He said the uniform per diem rate has cost the Susquehanna $320,972 in six years; pointed out that the idea of "burdensome clerical expense" from a multiple per diem has been "completely refuted"; and expressed the hope that a special committee would be appointed "to recommend a formula to rectify the inequity which has been done to the debit roads."

Graduated per diem would, Mr. Norton concluded, "provide a means of compensating roads for building special cars to meet special conditions . . . which may bring back to the rails some of the traffic they have lost to the trucks."

ORGANIZATIONS

Fifty-eight of the nation's leading materials handling experts will take part in the **Conference on Materials Handling** which will be held concurrently with the **National Materials Handling Exposition** at the International Amphitheatre, Chicago, April 30-May 4. The conference is sponsored by the **American Material Handling Society,** while the exposition is sponsored by the **Material Handling Institute.** More than 200 manufacturers of materials handling equipment will show machinery that will take up about 10 acres of exhibit space.

J. V. Hughes, assistant superintendent for the New York Central, at New York, will be guest speaker at a dinner meeting of the **Railway Business Women's Association of Metropolitan New York** on April 24, at 6:30 p.m., in the Midston House, 22 East 38th street.

Railroad Enthusiasts, Inc., New York division, will hold its next meeting on April 25, at 8 p.m., in room 5928, Grand Central Terminal. Frank P. Donovan, Jr., author of "Mileposts on the Prairie," will address the club on "The Prairie Railroad: The Story of the Minneapolis & St. Louis." An M. & St. L. film, "Fast Freight," will be shown.

The **Clearing-Cicero Traffic Conference** (Chicago) will install the following new officers at the annual dinner, scheduled for May 10: President—Frank Heles, Athey Products Corporation; vice-president—J. Buckley, freight representative, Baltimore & Ohio; Treasurer—L. Hines, Pan American World Airways; and secretary—E. Keen, Hot Point, Inc.

The **National Association of Railroad Women** will hold a regional meeting in Chicago on April 28 and 29, at the Drake hotel. Among the guest speakers for the second day of the meeting are Carroll Bateman, assistant director of public relations, Baltimore & Ohio; Mason B. Osburn, operating vice-president, Pullman Company, and George M. Crowson, assistant to president, Illinois Central.

SUPPLY TRADE

Pullman, Inc.s' Net Was $9,842,262 in 1950

Gross revenues of Pullman, Inc., and its domestic subsidiaries in 1950 totaled $170,506,214, compared with $234,646,050 in the preceding year, according to the recently released annual report. Net income was $9,842,262, compared with $5,496,834. On March 30, the backlog of freight-train cars on order from the subsidiary Pullman-Standard Car Manufacturing Company totaled 45,000 units, an all-time peak in the company's history, Champ Carry, president, said in the report.

Joseph J. Root, Jr., has been appointed vice-president in charge of railroad and oil companies' fleet sales of the **General Motors Corporation Truck & Supply Co.,** of Chicago. He was previously associated with the Union Tank Car Company as vice-president and director in charge of engineering and mechanical matters, from which post he recently retired. His office is at 228 North La Salle street, Chicago.

Richard E. Stiegele, who has been handling special assignments for the general sales department of the **Hyster Company,** at Portland, Ore., has been promoted to sales manager, eastern tractor equipment sales division, with headquarters at Peoria, Ill. Mr. Stiegele began his business career with the Caterpillar Tractor Company in Peoria, and for 10 years was in

Richard E. Stiegele

the parts, service and sales departments. During World War II, he served four years with aviation engineers of the United States Army Corps of Engineers on airfield construction and, after a brief return to Caterpillar in 1946, he joined Hyster. For two years, Mr. Stiegele was a district representative in Southeastern states and in 1948 was transferred to Portland.

The **Cummins Diesel Sales Corporation of Illinois** and **Cummins Diesel Sales and Service of New York, Inc.,** two wholly owned sales and service organizations of the **Cummins Engine Company,** have been merged with the **Cummins Diesel Sales Corporation,** which also includes Cummins dealerships with operating headquarters at St. Paul, Minn.,

William B. Lawrence

Omaha, Neb., Indianapolis, Ind., and Memphis, Tenn. **William B. Lawrence,** formerly Cummins Engine Company regional manager for the Rocky Mountain region, with headquarters at Denver, Colo., has been *(Continued on page 48)*

Full steam ahead for National Defense!

Full steam ahead! That's the call of a nation rearming. Full steam ahead! That's the answer of the railroads who carry the mighty volume of raw materials, parts and finished products that America must have—and fast. And to get up "steam" the railroads need coal—this year *65 million tons* of coal!

This tremendous tonnage adds up to about 12% of all the bituminous coal mined in America. Approximately half of all railroad freight gets to where it's going under power supplied by coal!

Fortunately for the railroads and the many other large coal users—the coal industry is well-prepared to fill their demands. The steel mills—the public utilities—the rubber industry—thousands of manufacturers across the country—can be sure of the coal they need to arm America!

Better coal and more efficient production have always been the aim of America's progressive mine operators. Private management has invested hundreds of millions of dollars in modern preparation plants—research—improved equipment and new mine properties. Today the country's need for coal is great. The coal industry is ready—and able—to meet that need!

BITUMINOUS COAL
BITUMINOUS COAL INSTITUTE
A Department of National Coal Association

FOR NATIONAL DEFENSE...FOR PEACETIME PROGRESS

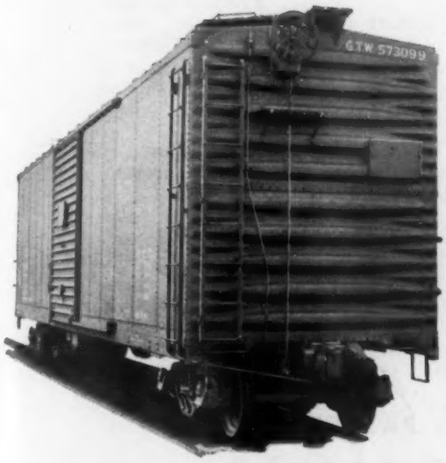
YOU CAN COUNT ON COAL!

Equipment–for the road ahead

Seldom have American railroads been faced with a greater or more important job. More and more goods must be hauled as our civilian economy and military program expand. Larger fleets will be necessary. Obsolete and worn out equipment must be replaced.

Pressed Steel Car Company manufactures standard and custom built box cars, refrigerator cars, gondola and hopper cars famous for efficient performance on every major road in America.

We suggest you bring your requirements to us and make sure you are equipped and *prepared* for the road ahead.



PSC

PRESSED STEEL CAR COMPANY, Inc.

6 No. Michigan Ave.
Chicago, Ill.

FIRST
all steel hopper car 1897
FIRST
all steel box car 1954
FIRST
UNIFLEX 1958

Mount Vernon, Ill.
Plant

(Continued from page 45)
appointed general manager of the Sales Corporation, which has headquarters at Columbus, Ohio. Mr. Lawrence, who joined Cummins in 1948, will now have direct supervision over the company's six dealerships.

Effective May 1, the **Dearborn Chemical Company** will be located at Merchandise Mart Plaza, Chicago 54.

The **Binks Manufacturing Company** has established a new office at 22-01 41st avenue, Long Island City 1, N. Y. **E. Cremer** has been appointed sales engineer and manager of the new office.

Robert S. Morton has been appointed assistant sales manager of the **Morton Manufacturing Company's** railway division, with headquarters at the firm's general offices in Chicago.

The **Spring Packing Corporation** has announced appointment of **John B. Welch** and **W. Huntley McPhee** as assistant vice-presidents. **Carl A. Schroeder** and **Lee C. Van Hooser** have been appointed regional managers, with headquarters at New York and Los Angeles, Cal., respectively.

Norman T. Olsen has been elected vice-president of the **Peerless Equipment Company.** Prior to becoming associated with Peerless, Mr. Olsen was chief mechanical engineer for the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha. He started his career in 1923

Norman T. Olsen

as a draftsman on the North Western. For a time during 1935 and 1936 he served with the Chicago, Rock Island & Pacific in a similar post. In 1944 Mr. Olsen became principal engineer for the North Western, and in 1947 was appointed chief mechanical engineer.

P. R. Mallory & Co., Indianapolis, Ind., and the **Sharon Steel Corporation,** Sharon, Pa., have formed a jointly owned company in which each will have a 50 per cent interest. The new corporation, to be known as the **Mallory-Sharon Titanium Corporation,** will be located in Indianapolis, with the following officers: Chairman of the board, **P. R. Mallory;** president **James A. Roemer;** vice-president and general manager, **F. H. Vandenburgh;** treasurer and assistant secretary, **E. N. Crosier;** and secretary and assistant treasurer, **George Fotheringham.**

Melvin F. Rice, assistant superintendent of the transportation division of the **General Electric Company** since 1949, has been appointed superintendent of the Hanford Works transportation division, succeeding **Robert T. Cooke,** who has been promoted to assistant manager of the stores and purchasing division.

Edward K. Foster has been elected a vice-president and a member of the administration committee of the **Bendix Aviation Corporation.** Mr. Foster will continue as general manager of the Bendix radio communications division at Baltimore, Md.

EQUIPMENT AND SUPPLIES

C.N. Budget Provides for 6,000 Cars, 20 Diesels

The Canadian National's 1951 equipment program calls for purchase of 5,500 box cars (including 500 for the Grand Trunk Western), 500 refrigerator cars and 20 3,000-hp. diesel-electric road locomotives, according to the road's budget for 1951 (see Financial columns in this issue).

FREIGHT CARS

New York Central Orders 7,050 Cars, 200 Cabooses

The New York Central has placed orders for 7,050 freight cars and 200 cabooses at an estimated total cost of $41 million. Orders for freight cars, which will be built next year, were placed at this time to insure continued regular delivery of new cars in 1952. The cabooses will be received late this year.

Of the new order, the Central will receive 2,500 hopper cars, 1,000 box cars, 1,000 gondolas, 500 flat cars, 50 tank cars and the 200 cabooses. The Pittsburgh & Lake Erie will receive 1,000 gondolas and 1,000 hopper cars.

The Bethlehem Steel Company and the Greenville Steel Car Company will each build 1,000 70-ton gondolas; the Pullman-Standard Car Manufacturing Company will build 1,000 55-ton hopper cars; Despatch Shops, Inc., will build 2,500 55-ton hopper cars and 1,000 55-ton box cars; the General American Transportation Corporation will build 500 flat cars and 50 12,500-gal. tank cars; and the St. Louis Car Company will build the 200 steel cabooses. The orders for the gondola and flat cars were reported in *Railway Age* of March 19, page 84.

The **Clinchfield** has ordered 500 50-ton hopper cars from the Pullman-Standard Car Manufacturing Company at an approximate cost of $4,900 each. The cars are scheduled for delivery in June 1952.

The **Denver & Rio Grande Western** is inquiring for 1,000 70-ton gondola cars.

The **Detroit & Mackinac** has ordered 100 50-ton box cars from the General American Transportation Corporation at an approximate cost of $600,000. Delivery is expected during this year's fourth quarter.

The **Florida East Coast** has ordered, subject to court approval, 75 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at an approximate cost of $575,000. Delivery is tentatively scheduled for the second half of 1952.

The **Illinois Terminal** has ordered 150 70-ton hopper cars from the General American Transportation Corporation and 100 50-ton 41-ft. flat bottom gondola cars from the Pressed Steel Car Company. Both lots are scheduled for delivery in the second quarter of 1952.

The **Minneapolis, St. Paul & Sault Ste. Marie** has ordered 350 50-ton box cars and 200 50-ton gondola cars from its Fond du Lac, Wis., shops. Delivery is scheduled for early 1952.

The **Richmond, Fredericksburg & Potomac** has ordered 50 70-ton gondola cars from the General American Transportation Corporation at a cost of $322,000. Delivery is scheduled for the fourth quarter of 1951.

The **Union Tank Car Company** has ordered 50 11,000-gal. propane tank cars from the American Car & Foundry Co. Delivery is anticipated during the first quarter of 1952.

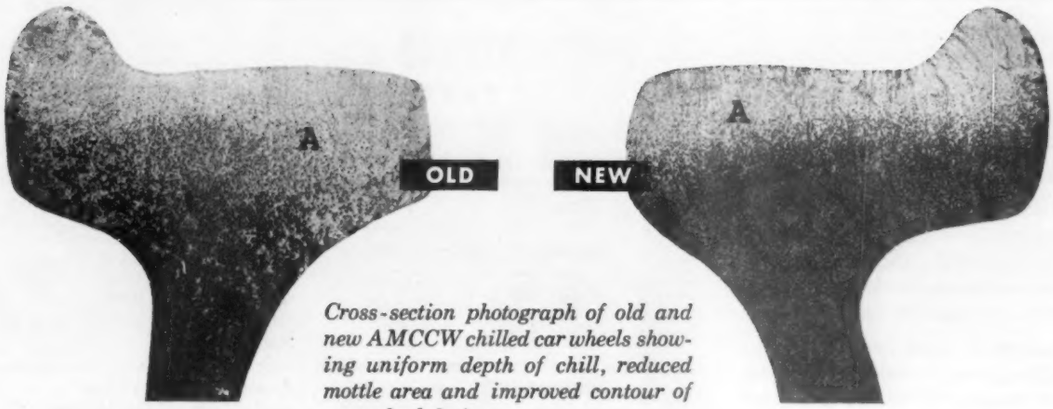
The **Western Fruit Express Company** has ordered 300 50-ton 40-ft. refrigerator cars from its own shops for delivery in the first quarter of 1952.

PASSENGER CARS

The **Wabash** has ordered one dome-parlor-lounge car from the Pullman-Standard Car Manufacturing Company. The car will be used in the Chicago-St. Louis "Blue Bird," to supplement the present dome-parlor-lounge-observation car which is no longer able to accommodate the train's growing patronage.

(Continued on page 51)

Picture of Car Wheel Progress



Cross-section photograph of old and new AMCCW chilled car wheels showing uniform depth of chill, reduced mottle area and improved contour of new wheel design.
Result: 26% improvement in car miles without wheel failure.

Here's why it pays to roll your freight cars on AMCCW wheels

On the left is a typical tread section of the AMCCW chilled car wheel as made prior to 1940. A good wheel in its day, and still rolling thousands of freight cars. Measured by the hard-boiled test of miles without wheel failure, this AMCCW car wheel was good for 95,000,000 car miles, according to 1939 figures. But there was still room for improvement. Note the depth of the chill and open mottle at **"A"** in the old wheel. This means relatively high shrinkage and the records show that low shrinkage wheels give longest service life.

The tread section at the right is visibly improved in chill control and contour. Note the lesser but more uniform depth of chilled iron at **"A"** in the new wheel. This gives maximum hardness on the wearing surface (*longer life*). And see how the softer but more resilient gray iron has been brought closer to the white iron for maximum shock absorption.

Close examination also reveals the change in design approved by the AAR in September 1950 which gives the AMCCW wheel at the right 100% greater rim strength and at the same time greatly improves the strength of the flange (*increased safety*).

When you specify AMCCW chilled car wheels you get this ideal combination of qualities: non-flowing hard metal on the tread, resilient shock-absorbing gray iron in the plate, easy-to-machine hub section, all cast into one integral unit. You get near-perfect uniformity, too, and the advantages of improvements as they are born of research, developed, and approved for production. It all spells millions more car-miles without failures. That's why it pays in safety and economy to insist on AMCCW car wheels for freight car service.

For more complete information about the advantages of AMCCW chilled car wheels, write us for the new booklet, "GENTLEMEN OF THE JURY."

NOW, more brackets—thicker, heavier, more continuous flange support; heavier tread on both rim and flange sides.

Low first cost
Low exchange rates
Reduced inventory
Short haul delivery
Increased ton mileage
High safety standards
Complete AMCCW inspection
Easier shop handling

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

445 North Sacramento Boulevard, Chicago 12, Ill.

American Car & Foundry Co. • Southern Wheel (American Brake Shoe Co.)
Griffin Wheel Co. • Marshall Car Wheel & Foundry Co. • New York Car Wheel Co.
Pullman-Standard Car Mfg. Co.

For maximum Diesel Performance use Vanadium Steels and Irons

You can obtain the mechanical properties required for satisfactory operation and long service life of Diesel locomotives by using Vanadium steels and irons.

Vanadium steel forgings, as well as Vanadium iron castings, have been designed for the best balance of mechanical properties obtainable for the service required of each specific part.

Recommended steel and iron compositions are given in the accompanying list for a variety of parts, many of which have already established satisfactory service records. A choice of materials is shown in some instances, in recognition of preference and of those variations in design and type of service which govern the properties required.

The metallurgical engineers of the Vanadium Corporation of America realize that each part is an individual problem, and they are prepared to cooperate with you to the fullest extent in selecting the best material for each application.

• • •

Write for Data Sheet giving details of composition, heat treatment and mechanical properties of Vanadium steels and irons for various Diesel applications.

MAKERS OF ALLOYS

VANCORAM BRAND

CHEMICALS AND METALS

PART	MATERIAL
	STEELS
AXLES	C-V steel
BRAKE RIGGING CASTINGS	Mn-V cast steel
CAMSHAFTS	Cr-V (AISI 6120) steel
COUPLERS	Mn-V cast steel
CRANKSHAFTS	Cr-Mo-V (4140+V) steel Ni-Cr-Mo-V (4340+V) steel Cr-V (6140) steel Cr-V (50T46) steel C-V (1045+V) steel
ENGINE BLOCK BASE	Mn-V plate steel
EQUALIZERS	Mn-V steel
GEARS	Cr-V (6145) steel
INJECTOR TIPS	Cr-V (6145) steel
PISTON PINS	Cr-V (AISI 6120) steel
ROCKER ARMS	Mn-V cast steel
ROCKER ARM BRACKETS	Mn-V cast steel
ROCKER ARM SHAFTS	Cr-V (AISI 6120) steel
SPRINGS	Cr-V (AISI 6150) steel Cr-Mo-V steel
TRUCK FRAMES	C-V cast steel Mn-V cast steel Ni-V cast steel
	IRONS
CYLINDER HEADS	Mo-V cast iron, Graphidox-treated*
CYLINDER LINERS	Cr-Mo-V cast iron, Graphidox-treated* Mn-V cast iron
EXHAUST MANIFOLDS	Mo-V cast iron Cr-Mo-V cast iron, Graphidox-treated*
PISTONS	Ni-Mo-V cast iron, Graphidox-treated* Mo-V cast iron, Graphidox-treated* Ni-Cr-Mo-V cast iron, Graphidox-treated*

**Graphidox is a graphitizing and deoxidizing alloy.*

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(Continued from page 48)

LOCOMOTIVES

Record Total of Motive Power on Order

An all-time high record in the amount of "new locomotive power" on order by Class I railroads was established on April 1, according to the Association of American Railroads. On that date there were on order 1,883 locomotives, consisting of 2,420 power units.

In terms of complete locomotives the number awaiting delivery on April 1 included 20 steam, 4 electric and 1,859 diesel-electric locomotives, but in terms of individual power units the orders included 20 steam, 8 electric and 2,392 diesel-electric units.

The previous high record of locomotive power on order was established by Class I roads on March 15, 1923, when the number awaiting delivery was 2,113. For the most part, however, those were single-unit steam locomotives, the A.A.R. pointed out. It added that the average tractive effort of the locomotives now being installed is approximately 65 per cent greater than it was 30 years ago.

On April 1, 1950, Class I roads had on order 1,099 locomotives, of which 1,084 were diesel-electric, 11 steam and 4 electric.

In the first three months of 1951 Class I roads put 619 new locomotives in service, of which 617 were diesel-electric and 2 were steam. In the same period of 1950 there were 484 installed, including 482 diesel-electric and 2 steam. Class I roads put 211 new locomotives in service in March this year, all being diesel-electric except for 1 steam locomotive.

The **Chicago, Rock Island & Pacific** has ordered 45 diesel-electric locomotive units. The Electro-Motive Division of General Motors Corporation will build 25 1,500-hp. road-switching units and the American Locomotive-General Electric Companies will construct 15 1,500-hp. double-control suburban units and five 1,600-hp. road-switching units. Authorization to order 25 road-switching, 15 suburban and six 2,250-hp. passenger units was reported in *Railway Age* of March 19, page 86. The passenger units have not yet been ordered.

SIGNALING

The **Pennsylvania** has ordered from the Union Switch & Signal Co. material to install new interlocking facilities at "Penn" interlocking, 30th street, Philadelphia, Pa. In addition to a 10-ft. style-C control machine, the order includes position-light signals, style A-5 electro-pneumatic switch machines, relays, rectifiers, transformers and housings. Field installation will be handled by railroad forces.

The **Wisconsin Central** has ordered from the General Railway Signal Company material for installation of a unit-wire remote control interlocking at Junction 85, Neenah, Wis.

CONSTRUCTION

Matawan Trestle to Be Replaced with Earth Fill

The 1,000-ft. single-track wooden trestle on the New York & Long Branch at Matawan, N. J., will be replaced by an earth fill, E. T. Moore, president of the N.Y.&L.B. and also of the Central of New Jersey, has notified the New Jersey Board of Public Utility Commissioners. Mr. Moore's notifying letter said the two-track earth fill plan had been selected, rather than a concrete and steel structure, after engineering studies indicated that "the more feasible construction will be to provide earth fill on a new alinement approximately 90 ft. west of the existing bridge, including reinforced concrete box culvert supporting the fill over Matawan creek." The road's intention to replace the present wooden trestle was reported in *Railway Age* March 5, page 78.

Baltimore & Ohio-New York Central.—These roads will undertake a major expansion of ore-handling facilities at their jointly owned Great Lakes coal and ore docks at Toledo, Ohio. The project has two phases: The present pair of 15-ton Hulett ore-loading machines will be remodeled to provide increased capacity for the 1952 lakes shipping season; and two new 20-ton Hulett loaders are being ordered for installation before the beginning of the 1953 shipping season. Installation will begin promptly after the machines' construction, which will take approximately 18 months. When the new loaders are placed in service it is planned to keep one, possibly both, of the 15-ton machines in operation also.

Chicago & Illinois Midland.—To serve a new coal mine now being constructed adjacent to C.&I.M. property at Ellis, Ill., railroad forces will construct 5.2 miles of new yard tracks and switching leads on grading work for which a contract is proposed. The estimated cost of this project is $330,000. It is also proposed that the present open-deck pile trestle at Oakford, Ill., be reconstructed into a creosote-treated ballast deck pile trestle. It is expected that most of this work will be contracted and that it will cost about $157,000.

Chicago, Indianapolis & Louisville.—Major undertakings for the current year total $985,767. The American Bridge Company is renewing two 60-ft. deck plate girder bridges at a cost of $41,050 and Intrusion-Prepakt, Inc., is carrying out repairs to six other bridges at various points at a total cost of $52,163. The railroad's own forces are to carry out additional work on four other bridges at a cost of $31,550. In addition, company forces are laying a total of 24 miles of new 115-lb. rail ($775,837), installing 44,000 yards of ballast ($65,167) and undertaking miscellaneous bank and ditch work at various points ($20,000).

Southern.—This road has awarded a contract for an estimated $500,000 to the Wm. A. Smith Construction Company, Houston, Tex., for track laying and surfacing in Ernest Norris yard, Birmingham, Ala. A contract (estimated cost $61,000), also has been awarded to Bernard & Byrd, Inc., New Orleans, La., for miscellaneous service buildings in the project involving extension and revision of Press Street yard in New Orleans (*Railway Age*, November 4, 1950, page 93). The following projects, at the indicated probable costs, have been authorized for the road's own forces: Replace steel truss span near Quicksburg, Va., with girders and new masonry ($40,000); fill part, and rebuild balance, of timber trestle at Camden, S. C. ($28,300); and construct an additional track east of Gest street, Cincinnati, Ohio ($28,290).

Wabash.—A new spur track, some three miles long, will be built in Clay county, Mo., near Kansas City, to serve a new plant of the Ford Motor Company. The line will extend from Birmingham to the plant site, where two train yards will provide a capacity of about 460 cars.

FINANCIAL

Canadian National.—*1951 Budget.*—This road is budgeting for a net deficit in 1951 of about $21,000,000, compared with a net deficit of $2,260,000 in 1950. The capital budget amounts to $40,215,000, and new equipment to be financed this year totals nearly $57,000,000. Operating revenues and expenses for the current year are estimated at, respectively, $588,600,000 and $543,750,000, compared with $553,831,000 and $493,997,000 last year. Net operating surplus, it is estimated, will be about $45,000,000, which, after deducting cost of new equipment and other improvements, will be cut to a net deficit of approximately $21,000,000. Deferred improvements will cost over $18,000,000 this year, more than four times the 1950 cost.

Denver & Rio Grande Western.—*Refunding Postponed.*—This road has postponed its proposed issuance and sale of $40,000,000 of first mortgage series B bonds (*Railway Age*, March 26, page 70).

(Continued on page 54)

Recognize a C-1 when you see one

Six big advantages make National C-1 Lading-Conscious Trucks outstanding

National C-1 trucks are easy to spot because you can inspect them at a glance. And simplified inspection is only one of many construction advantages built into each C-1 truck. Check these advantages yourself:

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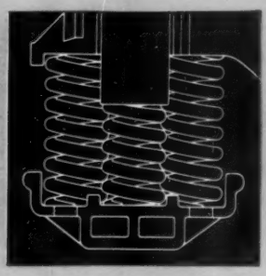
1 FULL VIEW of friction control mechanism in side frame gives immediate assurance that snubbing mechanism is functioning properly. No time delays, no costly handling, no parts to be removed.

2 WEDGES ARE RUGGED high strength castings uniformly heat-treated throughout to provide longer wear life. Convex surface has full-width bearing on side frame; flat surface bears on hardened steel bolster wear plate.

3 NATIONAL'S WEDGE SPRINGS are cold-wound, shot peened, low stressed and low rate to insure long life.



4 CHOICE OF SPRING DEFLECTIONS. C-1 trucks use A.A.R. Alternate Standard long-travel spring groups with 2½", 3 1/16" and 3 1/16" deflection . . . springs of 4" deflection may be used if desired.

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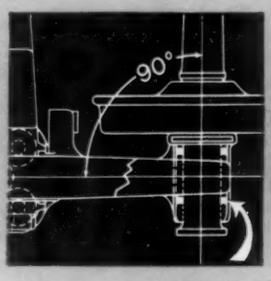
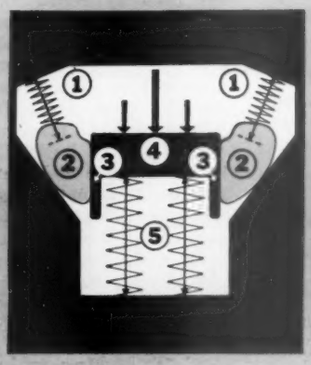


5 JOURNAL BEARING LUG PROTECTION. Four journal bearing wedge aligning lugs in each journal box limit truck unsquaring, preventing breakage of journal bearing lugs.

6 FULL BOX-SECTION BOLSTER . . . Friction mechanism in side frame controls both lateral and vertical motion . . . permits full box-section bolster of maximum torsion and bending resistance.



INSIDE STORY OF A "LADING-CONSCIOUS" RIDE. Constant pressure of wedge springs (1) forces friction wedge (2) down side frame against bolster wear plates (3), providing friction to control the vertical and lateral oscillations of the supporting springs. Car floats on full box-section bolster (4) & standard spring groups (5).

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CASTINGS COMPANY

JOURNAL BOXES AND LIDS

NATIONAL *Products* FOR TRANSPORTATION AND INDUSTRY

M&S Co. Est. 1868

(Continued from page 51)

Jacksonville & Northwestern.—*Acquisition.*—This road, a new company, has applied to the I.C.C. for authority to acquire and operate a railroad line of about 20 miles at the former Jacksonville Ordnance Plant, Pulaski county, Ark. The road has obtained a five-year lease of rail facilities in the plant area from the General Services Administration. It will pay rental of $2,000 a year. Buildings and other facilities at the ordnance plant have been sold to various manufacturing firms since World War II, and, according to the road, these concerns are in need of rail service. The J. & N. will connect with the Missouri Pacific at the town of Jacksonville.

Lehigh Valley.—*New Director.*—Stockholders of this road at the annual meeting in Bethlehem, Pa., on April 9 voted to increase the number of directors from 13 to 14. Carl W. Badenhausen, president of S. P. Ballantine & Sons, brewers, was elected to the board.

Northern Pacific.—*New Director.*—Norton Simon, chairman of Hunt Foods, Inc., Los Angeles, Cal., has been elected a director, to succeed Donald Royce, resigned.

Reading.—*Acquisition.*—Division 4 of the I.C.C. has authorized this road to acquire control of the Mine Hill & Schuylkill Haven through ownership of capital stock. The Reading and its subsidiaries own 40,045 shares of the 82,143 shares outstanding, and will purchase additional shares up to June 15 at $50 per share. (*Railway Age*, March 12, page 106.) The commission placed no limit on the number of shares Reading may acquire.

New Securities

Division 4 of the I.C.C. has **authorized:**

ATLANTIC & EAST CAROLINA.—To issue a collateral trust note for $112,500 to finance acquisition at that price of a 1,000-hp. diesel-electric road-switching locomotive from American Locomotive-General Electric Companies. (*Railway Age*, April 2, page 88.)

SOUTHERN PACIFIC.—To assume liability for $12,000,000 of series EE equipment trust certificates to finance in part 22 diesel-electric locomotives and 2,558 freight-train cars costing an estimated $16,042,585. This equipment is a part of the 39 diesel-electrics and 4,231 freight-train cars which the road has announced it will purchase. (*Railway Age*, March 26, page 72.) The present certificates, to be dated April 1, will mature in 15 annual installments of $800,000 each, beginning April 1, 1952. Division 4 approved a selling price for the issue of 99.1827 with interest at 2⅞ per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of the proceeds approximately 3.02 per cent. The certificates were reoffered to the public at prices yielding from 2.15 to 3 per cent, according to maturity.

Dividends Declared

Atlantic Coast Line.—common, $1.25, payable June 12 to holders of record May 15.

Georgia R.R. & Banking.—$1.75, quarterly, payable April 15 to holders of record March 31.

Goshen & Deckertown.—40¢, annual, payable April 20 to holders of record April 10.

Gulf, Mobile & Ohio.—common, 50¢, quarterly, payable May 12, June 30, September 29, and December 28, to holders of record April 23, June 11, September 10, and December 8; $5 preferred, $1.25, quarterly, payable September 29, December 28, March 31, 1952, and June 30, 1952, to holders of record September 10, December 8, March 11, 1952, and June 10, 1952.

Richmond, Fredericksburg & Potomac.—6% guaranteed preferred, 75¢, semiannual; 7% guaranteed preferred, 87½¢, quarterly, both payable May 1 to holders of record April 30.

Rutland & Whitehall.—$1, quarterly, payable May 15 to holders of record May 1.

Security Price Averages

	Apr. 17	Last Week	Last Year
Average price of 20 representative railway stocks	56.68	55.37	42.75
Average price of 20 representative railway bonds	95.53	96.33	92.76

RAILWAY OFFICERS

EXECUTIVE

H. B. Parker has been appointed assistant to president of the ST. LOUIS-SAN FRANCISCO, and **P. A. Moffitt,** assistant to vice-president—operation, both with headquarters at St. Louis.

W. S. Ziegler has been appointed assistant to vice-president, research and development, of the CANADIAN NATIONAL at Montreal, Que., succeeding **F. C. Salter,** who has been appointed personnel assistant.

Milton G. McInnes, assistant vice-president of operations of the ERIE, has been appointed vice-president of operations and maintenance, with headquarters as before at Cleveland, Ohio, succeeding the late **Raymond C. Randall,** whose death was reported in *Railway Age* April 16. **Garret C. White,** general manager of the Eastern district at Jersey City, N. J., has been appointed assistant vice-president at Cleveland, succeeding Mr. McInnes. **Adolph E. Kriesien,** general manager of the Western district at Youngstown, Ohio, has been appointed assistant vice-president and general manager of the Eastern district at Jersey City, a new position.

C. T. McMurray has been elected president of the MINNESOTA, DAKOTA & WESTERN and the INTERNATIONAL BRIDGE & TERMINAL, with headquarters at Minneapolis, Minn. Mr. McMurray is executive vice-president of the Minnesota & Ontario Paper Co.

FINANCIAL, LEGAL & ACCOUNTING

J. J. Burns has been appointed assistant secretary of the ST. LOUIS-SAN FRANCISCO, at St. Louis, Mo.

Marvin A. Jersild, assistant general counsel of the NEW YORK CENTRAL SYSTEM in charge of the Chicago office, has been appointed general attorney, in charge of the Central's legal work in Indiana, Illinois and states west of Illinois. **Gerald E. Dwyer** and **Leo Manville,** assistant general attorneys, have been appointed general attorney and assistant to general counsel, respectively, both at New York. **Francis L. Brown,** an attorney in the general solicitor's office, has been appointed assistant general attorney at New York.

OPERATING

W. E. Tate, assistant superintendent of the CANADIAN NATIONAL at London, Ont., has been promoted to superintendent transportation, succeeding **J. G. Gordon,** who has retired. Mr. Tate will have jurisdiction over the Southern Ontario district, with headquarters at Toronto. **A. Mahon,** assistant superintendent, Toronto terminals, has been made acting superintendent in the absence of **E. B. Ryerson,** who is on sick leave. **W. J. Rupert,** assistant superintendent at Belleville, Ont., moves to London in the same capacity, and is succeeded by **C. E. Shaver,** assistant superintendent at Lindsay. **N. T. Walton,** assistant superintendent at Montreal, replaces Mr. Shaver. **J. A. Lomas,** trainmaster at Gravenhurst, Ont., becomes trainmaster at Brantford, and **W. A. Pringle,** trainmaster at Coteau, Que., moves to Capreol, Ont., in that position, to succeed **G. H. Sanderson,** who replaces Mr. Lomas.

K. G. Roeder, assistant to superintendent of the LEHIGH & NEW ENGLAND, has been appointed trainmaster, Tadmor terminal, Bath, Pa., succeeding **L. H. Beam,** who has retired after 38 years of service.

S. A. C. Hart has been appointed terminal trainmaster on the ST. LOUIS-SAN FRANCISCO, at Memphis, Tenn.

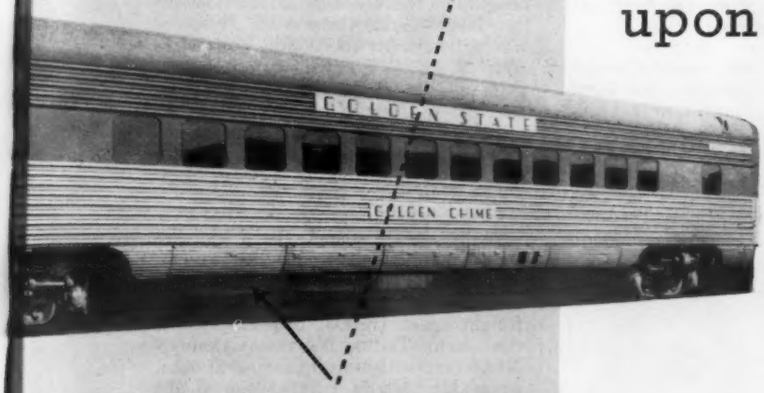
Roswell E. Flack, track supervisor on the SOUTHERN at Lawrenceburg, Ky., has been advanced to trainmaster at Huntingburg, Ind.

D. J. Clifford, trainmaster for the BELT OF CHICAGO, has been appointed acting superintendent at Clearing, Ill. **J. E. Smith** has been appointed day trainmaster and **Wayne Long,** night trainmaster, both with headquarters at Clearing.

William H. Bond, assistant superintendent in the dining car and commissary department of the BALTIMORE & OHIO, has been promoted to superintendent of that department, with headquarters as before at Washington, D. C., succeeding **Edward H. Sherman,** who has retired after 40 years of service. Mr. Bond was born at Annapolis, Md., in 1905 and joined the B.&O. as a dining car steward in 1929. He was promoted to dining car supervisor in 1945 and has been assistant superintendent at Washington since January 1, 1946.

Mr. Sherman was born in 1885 and began his railroad career as a dining car steward in 1911, serving successively as acting inspector, assistant

it's a fact . . .



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superintendent and superintendent. Mr. Sherman's headquarters were at Baltimore, Md.

Stanley F. McGranahan, assistant general manager of the Eastern district of the ERIE at Jersey City, N. J., has been appointed general manager of the Western district at Youngstown, Ohio, succeeding **Adolph E. Kriesien,** who has been appointed assistant vice-president and general manager of the Eastern district at Jersey City. **Thomas J. Sanok,** superintendent of the Allegany, Bradford, Meadville and

Stanley F. McGranahan

Buffalo-Southwestern divisions at Salamanca, N. Y., has been appointed assistant general manager of the Eastern district at Jersey City, succeeding Mr. McGranahan. **Donald A. Logan,** trainmaster, has been appointed assistant superintendent of the New York division, with headquarters as before at Jersey City, succeeding **Thomas E. McGinnis,** who succeeds Mr. Sanok as superintendent at Salamanca. **J. T. Corbett** has been appointed trainmaster of the New York Division, succeeding Mr. Logan.

Thomas J. Sanok

Mr. McGranahan was born at Jamestown, Pa., on August 19, 1892, and entered railroad service with the Erie in 1910 as a clerk at Greenville, Pa. Advancing through various positions, he became inspector of operation, chief clerk to superintendent of transportation and assistant superintendent of transportation, successively. In 1946 Mr. McGranahan was promoted to superintendent of the Buffalo-Rochester division, transferring to the New York division at Jersey City in 1948. He was appointed assistant general manager of the Eastern district in December 1949.

Mr. Sanok entered railroad service in 1929 as a stenographer with the Erie at Secaucus, N. J., and held various clerical positions until 1941 when he was appointed inspector of operation. He then served as trainmaster of the Susquehanna and Tioga, Delaware and New York divisions, being promoted to assistant division superintendent at Jersey City in 1948. Mr. Sanok was appointed division superintendent at Salamanca in December 1949.

Thomas W. Prior, superintendent of the CENTRAL VERMONT, has been appointed general manager, with headquarters as before at St. Albans, Vt., effective July 19, succeeding **John A. Rogers,** who will retire from active service on that date. Mr. Prior was born at Chicago on February 18, 1892, and joined the C.V. as a messenger

Thomas W. Prior

boy in 1906, subsequently becoming telegrapher. After attending Vermont Business College at Burlington, Vt., he re-entered the service of the C.V. as a telegrapher on April 25, 1911, and served successively as dispatcher, night chief dispatcher, rules instructor, trainmaster, assistant superintendent and superintendent.

TRAFFIC

Omar Kirby Sanders, who has been promoted to general freight agent of the BALTIMORE & OHIO at St. Louis, Mo. (*Railway Age*, April 9), was born on September 26, 1902, at Maben, Miss., and attended Tyler (Tex.) College. Mr. Sanders entered B.&O. service in March 1924, and after holding the positions of traveling freight agent and district freight representative, he became, in May 1943, division freight agent at Toledo, Ohio. In February 1947 he was appointed assistant general freight agent at Chicago, which post he held prior to his promotion.

Larry J. Hennessey, division passenger agent of the NEW YORK CENTRAL SYSTEM, has been appointed assistant general passenger agent, with headquarters remaining at Indianapolis, Ind.

R. C. Winchester, traffic manager of the LEHIGH & HUDSON RIVER, has been appointed general freight traffic manager, with headquarters as before at Warwick, N. Y. The position of traffic manager has been abolished. **F. J. Kinney** has been appointed freight traffic manager—rates and divisions at New York. Mr. Kinney's resignation from a similar position on the New York, Ontario & Western was reported in the *Railway Age* of April 9. **M. J. Loydon** has been appointed general freight agent of the L.&H.R. at New York; **W. J. Fitzgerald** has been appointed general New England agent at Boston, Mass., and **D. G. Bainbridge** has been appointed general agent at Warwick.

As reported in the April 16 *Railway Age*, **R. A. Norris** and **J. M. Frank** have been appointed assistant freight traffic manager (rates) and general freight agent (rates), respectively, for the GRAND TRUNK WESTERN-CANADIAN NATIONAL, with headquarters at Chicago. Mr. Norris entered the road's service in 1919 as a stenographer in the tariff bureau at Montreal, Que., being transferred to Chicago in 1926, where he acted as percentage clerk in the freight tariff bureau and chief of the tariff bureau. He became assistant general freight agent in December 1943, the post he held prior to his new appointment.

Starting with the G.T.W.-C.N.R. in 1922 as a messenger, Mr. Frank later served as chief clerk to the freight traffic manager, and as general agent at Kansas City, Cincinnati and Philadelphia. In 1950 he returned to Chicago as assistant to the freight traffic manager, in which capacity he served until his recent appointment.

W. J. Grady has been appointed general agent of the MINNEAPOLIS, NORTHFIELD & SOUTHERN at Fargo, N. D.

James C. Quirk has been appointed general agent of the TENNESSEE CENTRAL at St. Louis, Mo., succeeding **Clyde L. Corcoran,** who has resigned.

W. J. Luchsinger, assistant general freight and passenger agent of the NORTHERN PACIFIC at Duluth, Minn., has been appointed to the newly-created post of Eastern freight traffic manager, with headquarters at New York and jurisdiction over freight sales and service in the New York, Philadelphia, Boston, Pittsburgh, Buffalo, Cleveland and Washington, D. C., territories. Succeeding Mr. Luchsinger is

George L. Bryson, passenger traffic manager of the Grand Trunk Western-Canadian National, with headquarters at Chicago, who has been promoted to passenger traffic manager—U. S. lines

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Ober A. Kobs, assistant general freight agent at St. Paul. **John J. O'Connor,** assistant general freight agent in the St. Paul general office, succeeds Mr. Kobs as supervisor of freight sales and service in that territory. Mr. O'Connor's successor is **E. E. Chapman,** foreign freight agent at Portland, Ore.

Joseph N. Vincent, special passenger representative of the CANADIAN NATIONAL, has been appointed assistant to the general passenger traffic manager at Montreal, Que.

Ben H. Brown, assistant to the traffic vice-president of the ATLANTIC COAST LINE at Wilmington, N. C., has been appointed traffic manager of the CHARLESTON & WESTERN CAROLINA at Augusta, Ga.

G. A. Morgan, general agent in the ST. LOUIS-SAN FRANCISCO's freight department at Kansas City, Mo., has been advanced to traffic manager at Pensacola, Fla. Mr. Morgan entered Frisco service in 1918 as a clerk at Chaffee, Mo., and in 1935 joined the traffic department as traffic representative at Blytheville, Ark., becoming traveling freight and passenger agent at Pensacola in 1938 and general agent at Kansas City in 1943.

ENGINEERING AND SIGNALING

W. Lenco, assistant bridge engineer of the Atlantic region of the CANADIAN NATIONAL, has been appointed bridge engineer, with headquarters as before at Moncton, N. B., succeeding **J. C. King,** who has been transferred to the Central region at Toronto, Ont.

W. F. Turner, division engineer of the SOUTHERN PACIFIC's Sacramento division, has been appointed construction division engineer, with headquarters remaining at Sacramento, Cal., to supervise construction of the

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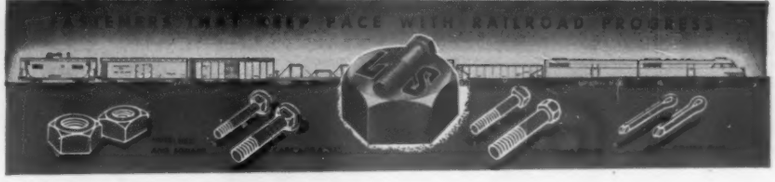

company's new retarder yard at Roseville, Cal. (*Railway Age*, March 26, page 69.) He is succeeded by **W. J. Jones,** assistant division engineer at Ogden, Utah.

MECHANICAL

P. J. Finch has been appointed assistant to superintendent motive power—diesel engineering and maintenance, of the CHESAPEAKE & OHIO at Richmond, Va. The position of mechanical engineer at Richmond, formerly held by Mr. Finch, has been abolished.

SPECIAL

P. E. Ayrhart has been appointed director of labor relations of the CANADIAN NATIONAL, and **W. T. Wilson** has been named director of personnel, at Montreal, Que.

OBITUARY

J. Orr, superintendent of communications of the MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE, at Minneapolis, Minn., died on April 14. Mr. Orr was born June 23, 1906, at Paxton, Ill., and educated at Cornell College, Mt. Vernon, Iowa, and Michigan College of Mining and Technology. In 1929 he became employed by the Western Union Telegraph Company as a groundman, and following service in various positions with that company joined the Postal Telegraph & Cable Co. in 1931. He served successively as clerk, cable engineer, district engineer and district foreman until 1942, when he became associated with the Kellogg Switchboard & Supply Co., first as outside plant engineer and later as staff engineer. Mr. Orr joined the Soo Line in 1944 as superintendent of communications.

Arthur Mackenzie, who retired as vice-president and freight traffic manager of the CHICAGO, ROCK ISLAND & PACIFIC in 1940, died on April 15, at the age of 82.

Edward M. Thomas, vice-president in charge of accounting of the NEW YORK, CHICAGO & ST. LOUIS at Cleveland, Ohio, died on April 14 at the age of 71. Mr. Thomas was born at Richmond, Va., on May 31, 1879, and entered railroad service in 1897 as a clerk in the motive power and stores department of the Chesapeake & Ohio. He subsequently served as storekeeper and clerk in the office of the auditor of disbursements of that road. He was cashier and traveling auditor with Armour & Co., during 1906 and 1907, when he returned to the C.&O., where he served successively as special accountant and statistician, member of the valuation committee in charge of the accounting and mechanical departments, general auditor in charge of corporate accounts, and comptroller. From 1930 to 1943 Mr. Thomas was comptroller of the Pere Marquette and from 1933 to 1943 was also comptroller of the N.Y.C.&St. L. He served as vice-president of the C.&O., P.M. and N.Y.C.&St.L. from 1943 to 1947 and since the latter year has served as vice-president of accounting of the N.Y.C.& St. L. Mr. Thomas was president of the Railway Accounting Officers Association during 1924-1925 and chairman of the Committee on General Accounts during 1925-1926.

Edward M. Thomas

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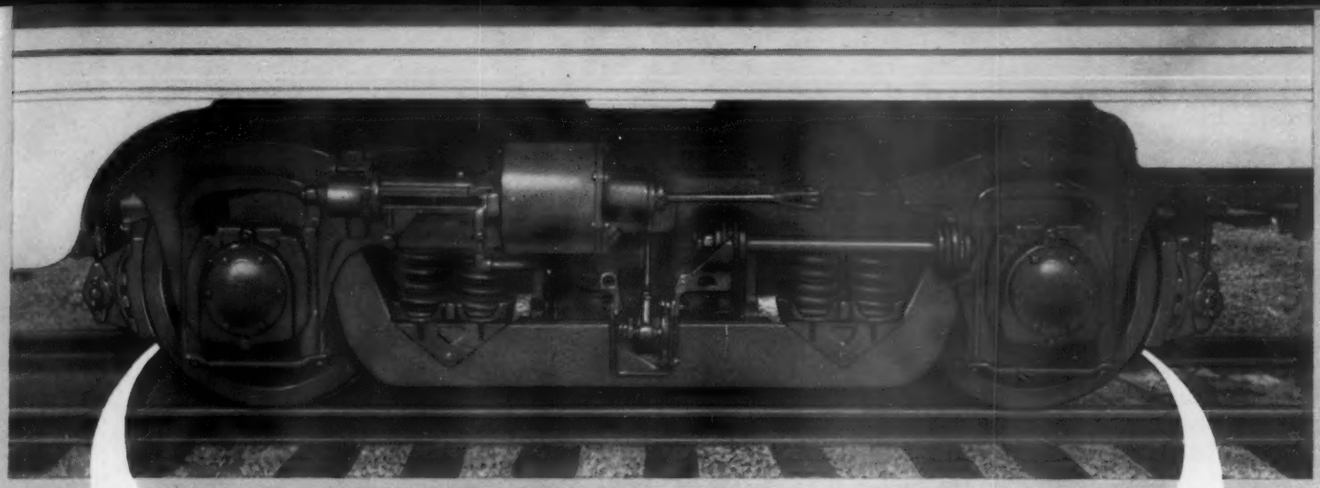


ON-TREAD BRAKING

Gives Wheels Better Traction

FOR SAFE, SHORT, SURE STOPS IN ANY KIND OF WEATHER

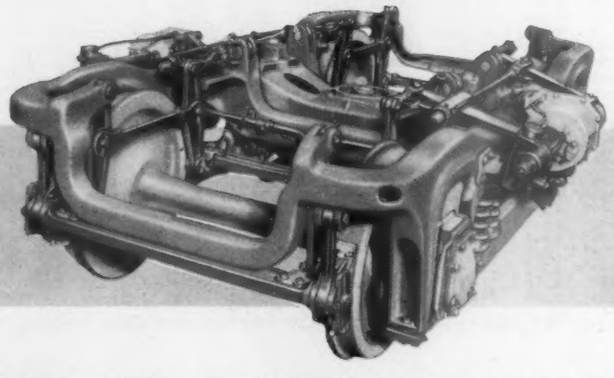
On-tread Simplex Clasp Brakes—with their drying, scouring action—provide dependable Power-to-Stop for virtually every Streamliner. The tread-wiping effect of brake application gives car wheels better traction . . . an important fact, because *slippage is dangerous* when it comes to stopping a train.

There are two general types of slippage factors: (1) those affecting wheel-rail contact—water, snow, dirt, and greasy substances; and (2) those affecting wheel-rail pressure—high speed, *unbalance*, eccentric wheels, etc. Simplex Clasp Brakes tend to minimize all of these *long-stop* slippages.

For Group 1, the benefits of on-tread braking are obvious. And for Group 2 the clasp brake has equally important advantages—no rotating parts to get out of balance; action that helps keep wheels concentric; rising torque as speed is slackened and wheel-rail adhesion improves. Nothing has yet been developed which rivals clasp brakes for overall safety.

Streamlined, Light-Weight

SIMPLEX UNIT CYLINDER CLASP BRAKES



AMERICAN STEEL FOUNDRIES

MINT MARK OF ● FINE PRODUCTS

Freight Operating Statistics of Large Steam Railways — Selected

Region	Road	Year	Miles of road operated	Train-miles	Locomotive Miles: Principal and helper	Locomotive Miles: Light	Car Miles: Loaded (thousands)	Car Miles: Per cent loaded	Ton-Miles (thousands): Gross excl.locos. & tenders	Ton-Miles (thousands): Net rev. and non-rev.	Road-locos. on line: Serviceable: Unstored	Road-locos. on line: Serviceable: Stored	Road-locos. on line: B.O.	Road-locos. on line: Per Cent B.O.
New Eng. Region	Boston & Maine	1950	1,691	271,622	279,180	11,709	10,447	72.3	632,440	268,941	91	6	5	4.9
		1949	1,700	280,221	289,315	13,030	10,015	65.0	648,758	264,428	90	5	11	10.4
	N. Y., N. H. & Htfd.	1950	1,766	294,500	294,985	24,818	11,338	70.8	726,009	331,540	104	..	9	8.0
		1949	1,773	274,168	275,122	35,022	10,872	65.2	686,674	300,262	116	10	10	7.4
Great Lakes Region	Delaware & Hudson	1950	793	259,199	301,634	22,140	11,433	73.2	786,728	429,334	149	36	36	16.3
		1949	794	241,278	293,556	32,342	10,337	64.0	742,479	375,325	124	56	17	8.6
	Del., Lack. & Western	1950	966	293,690	320,979	32,371	12,894	70.2	832,539	376,206	77	2	46	36.8
		1949	966	249,408	278,495	26,512	10,973	65.1	733,413	316,423	75	24	30	23.3
	Erie	1950	2,245	669,227	683,779	44,696	34,891	69.7	2,156,452	908,898	192	7	31	13.5
		1949	2,231	578,971	596,315	42,361	29,858	65.0	1,924,942	783,441	164	55	57	20.7
	Grand Trunk Western	1950	974	271,071	278,846	3,412	9,484	66.0	632,958	272,485	59	..	15	20.3
		1949	971	234,141	240,820	2,543	7,415	63.0	496,453	204,940	55	..	12	17.9
	Lehigh Valley	1950	1,216	246,312	259,766	27,725	12,377	73.4	797,218	384,716	54	..	11	16.9
		1949	1,239	229,434	242,101	23,467	10,597	64.8	732,559	331,613	52	6	33	36.3
	New York Central	1950	10,691	3,253,145	3,437,385	198,794	111,958	64.7	7,948,071	3,712,767	1007	13	369	26.6
		1949	10,680	2,997,020	3,164,028	187,677	101,954	58.8	7,278,881	3,193,186	969	59	424	29.2
	NewYork, Chic. & St. L.	1950	2,162	864,744	882,518	14,775	31,650	67.2	2,124,412	967,021	211	2	33	13.4
		1949	2,162	719,027	734,751	8,648	26,254	60.7	1,882,221	793,269	186	23	58	21.7
	Pitts. & Lake Erie	1950	221	93,613	98,157	194	4,228	66.7	361,401	221,505	29	..	12	29.3
		1949	221	81,454	82,686	20	2,868	63.7	252,074	149,641	24	2	22	45.8
	Wabash	1950	2,381	580,696	589,838	10,120	24,556	72.4	1,511,374	658,878	141	6	75	33.8
		1949	2,381	585,713	595,589	9,989	20,376	66.1	1,324,537	544,289	140	12	59	28.0
Central Eastern Region	Baltimore & Ohio	1950	6,083	1,902,663	2,263,283	248,255	69,837	65.4	5,032,267	2,469,010	716	34	218	22.5
		1949	6,086	1,699,641	2,027,612	230,617	57,462	59.0	4,439,906	2,107,471	679	77	291	27.8
	Central of New Jersey	1950	410	75,655	75,655	4,178	2,742	67.2	199,487	103,286	39	..	6	13.3
		1949	411	65,628	65,700	5,261	2,391	63.8	177,702	90,576	33	3	9	20.0
	Central of Pennsylvania	1950	210	72,508	79,798	12,793	2,786	72.5	200,422	110,926	36	2	15	28.3
		1949	212	60,353	67,718	11,292	2,359	63.6	178,560	92,762	30	1	16	34.0
	Chicago & Eastern Ill.	1950	886	126,403	126,403	2,605	5,075	71.1	327,950	161,204	25	..	2	7.4
		1949	906	122,558	123,522	2,687	3,991	66.8	267,432	127,125	38	2	3	7.0
	Elgin, Joliet & Eastern	1950	238	89,468	92,556	136	3,249	68.8	246,169	135,167	40	..	1	2.4
		1949	238	88,277	89,155	10	3,075	63.1	241,354	127,577	37	..	3	7.5
	Pennsylvania System	1950	10,036	3,096,922	3,426,543	374,429	131,994	69.4	8,925,643	4,392,127	1247	..	325	20.7
		1949	10,009	2,815,885	3,090,277	340,774	109,774	60.3	8,010,311	3,655,964	1206	60	471	27.1
	Reading	1950	1,315	386,413	399,938	29,179	14,770	66.7	1,141,839	628,544	178	12	27	12.4
		1949	1,320	371,818	386,987	28,708	12,948	60.2	999,948	518,668	168	21	39	17.1
	Western Maryland	1950	837	198,315	237,901	29,004	7,254	63.8	595,586	332,580	148	21	13	7.1
		1949	837	157,455	184,951	24,127	5,282	58.9	446,165	238,818	129	34	14	7.9
Pocahontas Region	Chesapeake & Ohio	1950	5,042	1,541,780	1,617,325	66,985	61,969	59.5	5,165,523	2,874,263	555	3	210	27.3
		1949	5,044	1,270,357	1,358,549	56,938	47,144	53.3	4,073,994	2,122,159	537	48	151	20.5
	Norfolk & Western	1950	2,104	731,967	777,904	61,416	32,811	61.5	2,806,649	1,539,628	246	19	26	8.9
		1949	2,107	627,436	666,289	50,470	26,490	56.4	2,301,119	1,212,515	244	25	53	16.5
Southern Region	Atlantic Coast Line	1950	5,432	852,220	878,111	14,236	27,034	61.8	1,901,833	862,803	343	..	93	21.3
		1949	5,507	855,654	867,171	14,227	22,357	57.5	1,605,973	683,660	339	20	81	18.4
	Central of Georgia	1950	1,783	292,214	295,771	4,902	8,035	71.3	523,618	246,538	99	..	10	9.2
		1949	1,783	254,766	257,574	3,947	6,614	67.8	434,649	194,501	100	5	11	9.5
	Gulf, Mobile & Ohio	1950	2,851	340,549	340,549	217	16,880	74.4	1,078,973	515,649	81	..	2	2.4
		1949	2,854	325,072	325,072	107	14,034	68.9	923,764	421,649	62	5	3	4.3
	Illinois Central	1950	6,539	1,620,371	1,626,346	57,413	55,755	65.2	3,985,239	1,885,419	594	..	66	10.0
		1949	6,543	1,460,566	1,466,334	51,395	47,466	60.3	3,548,453	1,616,122	551	6	94	14.4
	Louisville & Nashville	1950	4,769	1,190,180	1,272,195	35,536	36,974	65.5	2,665,278	1,354,021	317	10	109	25.0
		1949	4,770	1,225,009	1,313,715	33,268	31,811	60.9	2,305,771	1,138,498	346	28	82	18.0
	Nash., Chatt. & St. Louis	1950	1,049	230,941	234,488	3,889	6,791	75.4	426,483	206,217	74	..	16	17.8
		1949	1,049	191,344	193,789	3,426	5,695	69.1	362,794	161,301	57	2	1	1.7
	Seaboard Air Line	1950	4,136	769,979	804,751	3,386	25,666	65.6	1,786,168	810,997	254	5	49	15.9
		1949	4,136	738,160	758,656	7,485	22,208	60.7	1,599,852	688,608	276	17	28	8.7
	Southern	1950	6,302	1,265,911	1,273,928	15,974	43,132	70.7	2,702,114	1,228,968	377	12	171	30.5
		1949	6,168	1,232,647	1,240,563	12,157	37,616	63.1	2,504,080	1,062,289	366	53	141	25.2
Northwestern Region	Chicago & North Western	1950	7,920	868,916	883,707	24,936	30,920	69.6	2,102,214	973,980	303	6	119	27.8
		1949	8,072	853,444	868,692	23,909	27,079	62.2	1,908,407	812,370	304	29	133	28.5
	Chicago Great Western	1950	1,441	150,151	150,505	11,006	8,839	72.0	573,688	265,607	34	..	1	2.9
		1949	1,445	156,239	157,600	8,357	8,167	64.4	541,553	224,063	44	..	5	10.2
	Chic., Milw., St. P. & Pac.	1950	10,663	1,255,332	1,299,552	49,993	47,803	70.5	3,098,813	1,456,626	442	60	84	14.3
		1949	10,663	1,215,697	1,264,144	47,344	40,271	62.0	2,790,032	1,206,796	425	83	78	13.3
	Chic., St. P., Minn. & Omaha	1950	1,606	203,726	212,135	10,804	5,535	70.0	371,240	168,467	74	..	24	24.5
		1949	1,606	194,457	202,823	10,666	5,078	64.8	355,196	159,435	69	..	40	36.7
	Duluth, Missabe & Iron Range	1950	564	41,547	41,641	968	920	52.6	74,041	39,198	19	20	20	33.9
		1949	564	28,872	29,040	501	449	53.7	33,016	14,405	25	15	24	37.5
	Great Northern	1950	8,220	1,103,840	1,105,604	54,801	41,294	72.6	2,753,589	1,333,127	369	87	53	10.4
		1949	8,221	940,658	939,753	49,025	32,831	68.0	2,222,886	1,004,415	316	76	48	10.9
	Minneap., St. P. & S. St. M.	1950	4,179	401,079	409,202	6,835	12,528	72.5	791,329	385,206	112	..	17	13.2
		1949	4,179	369,325	374,216	4,220	11,156	65.0	734,711	330,607	109	4	17	13.1
	Northern Pacific	1950	6,609	837,114	875,758	43,370	31,715	71.3	2,156,426	1,033,445	335	17	58	14.1
		1949	6,593	832,136	871,334	53,973	27,351	64.1	1,982,915	891,099	320	20	69	16.9
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1950	13,074	2,775,440	2,907,145	108,418	112,702	66.1	7,446,143	2,890,027	674	33	149	17.4
		1949	13,096	2,312,573	2,434,976	84,200	89,030	65.7	5,927,127	2,261,955	614	172	109	12.2
	Chic., Burl. & Quincy	1950	8,796	1,265,469	1,289,563	54,446	53,306	70.0	3,557,410	1,681,616	392	22	137	24.9
		1949	8,839	1,139,209	1,158,123	42,503	42,300	63.1	2,909,130	1,263,685	400	31	146	25.3
	Chic., Rock I. & Pac.	1950	7,579	1,102,510	1,131,557	21,561	43,541	68.1	2,862,454	1,311,182	241	24	67	20.2
		1949	7,597	1,044,571	1,083,762	16,111	34,942	59.2	2,438,577	1,007,416	236	22	98	27.5
	Denver & R. G. Wn.	1950	2,387	331,832	366,112	41,742	13,502	69.4	926,268	453,934	110	31	34	19.4
		1949	2,413	341,667	368,436	46,542	12,294	73.0	827,579	408,417	129	20	46	23.6
	Southern Pacific	1950	8,054	2,052,770	2,160,689	292,027	91,513	71.0	5,831,963	2,500,083	763	4	135	15.0
		1949	8,067	1,885,524	2,029,229	342,818	77,766	65.5	5,211,055	2,136,796	736	1	184	20.0
	Union Pacific	1950	9,720	2,437,130	2,534,044	180,740	103,901	69.3	6,833,519	3,001,252	626	55	118	14.8
		1949	9,721	2,135,368	2,215,982	159,923	84,246	64.8	5,691,723	2,495,502	578	75	128	16.4
	Western Pacific	1950	1,192	239,540	247,125	26,283	11,096	72.6	708,706	312,566	48	11	34	36.6
		1949	1,192	201,417	218,683	20,159	9,073	74.4	573,063	261,688	70	7	28	26.7
Southwestern Region	International-Gt. Northern*	1950	1,089	195,764	195,992	673	6,763	67.7	476,777	208,985	55	5	6	9.1
		1949	1,110	185,530	186,017	1,402	5,904	61.9	446,372	202,527	60	7	2	2.9
	Kansas City Southern	1950	886	179,818	182,410	2,038	9,495	69.4	631,225	292,940	32	5	21	36.2
		1949	886	165,593	165,666	640	7,701	65.1	536,418	243,793	33	14	9	16.1
	Mo.-Kans.-Texas Lines	1950	3,231	426,149	428,461	6,472	15,484	66.9	993,323	430,395	93	6	29	22.7
		1949	3,241	402,002	409,866	6,535	13,217	63.2	885,285	379,747	91	3	44	31.9
	Missouri Pacific*	1950	6,942	1,371,361	1,393,067	25,572	50,250	67.9	3,356,325	1,508,443	372	..	41	9.9
		1949	6,951	1,276,509	1,298,021	22,368	42,686	64.3	2,954,132	1,305,097	354	13	69	15.8
	Texas & Pacific	1950	1,844	380,480	380,480	12,387	14,828	64.4	1,012,675	394,345	83	2	8	8.6
		1949	1,844	343,135	343,135	11,326	12,558	61.8	861,694	332,317	115	..	5	4.2
	St. Louis-San Francisco	1950	4,604	705,197	716,316	8,860	24,219	67.8	1,591,568	716,715	211	68	72	20.5
		1949	4,615	697,826	706,411	7,651	21,165	61.0	1,492,335	639,326	206	71	50	15.3
	St. Louis Southw. Lines	1950	1,562	358,673	360,445	4,953	15,224	74.3	904,396	404,278	75	9	20	19.2
		1949	1,562	345,198	347,226	4,699	13,007	67.3	806,728	360,619	74	17	16	15.0
	Texas & New Orleans	1950	4,315	817,370	817,370	23,841	28,841	67.9	1,937,688	857,932	221	..	51	18.8
		1949	4,314	803,905	803,905	25,670	25,089	65.1	1,721,660	736,011	231	..	43	15.7

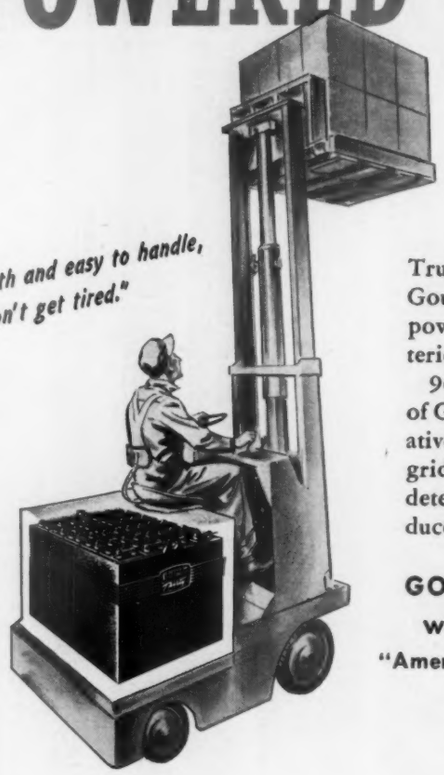
Items for the Month of December 1950 Compared with December 1949

	Region, Road and Year		Freight cars on line				G.t.m.per train-hr. excl.locos. and tenders	G.t.m.per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd. car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Train-miles per train-hour	Miles per loco per day
			Home	Foreign	Total	Per Cent B.O.									
New Eng. Region	Boston & Maine	1950	1,333	9,093	10,426	3.3	36,931	2,332	992	25.7	845	45.4	5,130	15.9	98.2
		1949	2,208	8,188	10,396	3.2	37,034	2,319	945	26.4	781	45.5	5,018	16.0	93.7
	N. Y., N. H. & Htfd.	1950	1,453	18,585	20,038	1.3	36,377	2,470	1,128	29.2	546	26.4	6,056	14.8	107.5
		1949	2,249	15,829	18,078	2.4	35,970	2,511	1,098	27.6	508	28.2	5,463	14.4	85.3
Great Lakes Region	Delaware & Hudson	1950	2,055	6,443	8,498	6.5	56,652	3,048	1,664	37.6	1,632	59.4	17,465	18.7	49.7
		1949	5,109	4,925	10,034	5.0	54,703	3,092	1,563	36.3	1,181	50.8	15,248	17.8	55.7
	Del., Lack. & Western	1950	4,546	11,846	16,392	9.1	44,915	2,882	1,302	29.2	748	36.5	12,563	15.8	97.7
		1949	8,219	7,529	15,748	11.2	44,468	2,996	1,292	28.8	631	33.6	10,566	15.1	81.7
	Erie	1950	6,717	23,292	30,009	3.9	54,752	3,245	1,368	26.0	981	54.0	13,060	17.0	111.2
		1949	12,108	16,185	28,293	8.5	55,127	3,348	1,362	26.2	886	51.9	11,328	16.6	83.3
	Grand Trunk Western	1950	3,429	11,762	15,191	4.4	45,266	2,367	1,019	28.7	590	31.1	9,024	19.4	134.4
		1949	4,638	8,198	12,836	8.6	43,617	2,136	882	27.6	506	29.0	6,808	20.6	128.0
	Lehigh Valley	1950	3,802	12,342	16,144	6.4	62,132	3,275	1,580	31.1	764	33.5	10,206	19.2	139.0
		1949	9,182	8,517	17,699	10.6	58,567	3,253	1,472	31.3	599	29.6	8,634	18.3	101.5
	New York Central	1950	50,943	133,778	184,721	4.2	36,218	2,483	1,160	33.2	655	30.5	11,203	14.8	93.0
		1949	71,112	81,964	153,076	9.1	40,868	2,471	1,084	31.3	644	35.0	9,645	16.8	81.9
	NewYork, Chic. & St. L.	1950	4,611	22,270	26,881	3.9	42,023	2,518	1,146	30.6	1,191	58.0	14,428	17.1	126.4
		1949	10,512	14,361	24,873	3.8	45,983	2,650	1,117	30.2	1,090	59.4	11,836	17.6	96.3
	Pitts. & Lake Erie	1950	4,113	12,609	16,722	10.4	48,641	3,873	2,374	52.4	448	12.8	32,332	12.6	81.3
		1949	5,824	8,454	14,278	13.9	44,639	3,101	1,841	52.2	352	10.6	21,842	14.4	62.2
	Wabash	1950	6,211	13,335	19,546	2.6	53,719	2,642	1,152	26.8	1,087	56.0	8,927	20.6	92.7
		1949	7,993	12,254	20,247	2.9	48,417	2,292	942	26.7	880	49.9	7,374	21.4	97.1
Central Eastern Region	Baltimore & Ohio	1950	33,565	58,658	92,223	7.0	34,205	2,696	1,323	35.4	845	36.6	13,093	12.9	87.7
		1949	53,546	34,472	88,018	14.2	34,810	2,681	1,273	36.7	774	38.5	11,170	13.3	70.7
	Central of New Jersey	1950	361	9,479	9,840	2.5	35,477	2,752	1,425	37.7	339	13.4	8,126	13.5	88.8
		1949	941	7,579	8,520	9.5	38,472	2,792	1,423	37.9	316	13.1	7,109	14.2	79.7
	Central of Pennsylvania	1950	923	3,374	4,297	16.2	39,735	2,954	1,635	39.8	806	27.9	17,039	14.4	68.7
		1949	2,401	2,870	5,271	14.3	43,722	3,114	1,618	39.3	581	23.2	14,115	14.8	61.6
	Chicago & Eastern Ill.	1950	1,677	4,073	5,750	7.1	42,492	2,621	1,288	31.8	893	39.5	5,869	16.4	164.1
		1949	2,645	3,341	5,986	6.9	37,773	2,186	1,039	31.9	705	33.2	4,526	17.3	97.6
	Elgin, Joliet & Eastern	1950	5,956	15,490	21,446	2.5	18,053	2,898	1,591	41.6	208	7.3	18,320	6.6	110.6
		1949	7,433	10,009	17,442	2.8	22,027	2,836	1,499	41.5	255	9.7	17,292	8.1	96.5
	Pennsylvania System	1950	90,543	127,582	218,125	11.3	39,455	2,988	1,470	33.3	654	28.3	14,117	13.7	85.5
		1949	124,322	98,609	222,931	18.2	42,852	2,932	1,338	33.3	513	25.6	11,783	15.1	68.0
	Reading	1950	10,025	19,604	29,629	4.1	36,898	2,956	1,627	42.6	679	23.9	15,419	12.5	74.7
		1949	15,963	18,006	33,969	9.0	34,518	2,690	1,395	40.1	491	20.4	12,675	12.8	65.3
	Western Maryland	1950	3,962	4,703	8,665	1.4	40,819	3,060	1,708	45.8	1,298	44.4	12,818	13.6	51.3
		1949	6,432	2,518	8,950	1.6	39,213	2,879	1,541	45.2	891	33.5	9,204	13.8	40.9
Pocahontas Region	Chesapeake & Ohio	1950	43,288	24,142	67,430	5.6	54,625	3,406	1,895	46.4	1,367	49.5	18,389	16.3	79.6
		1949	60,165	20,372	80,537	6.9	53,835	3,241	1,688	45.0	873	36.4	13,572	16.8	66.6
	Norfolk & Western	1950	26,898	7,687	34,585	2.5	63,851	3,902	2,141	46.9	1,387	48.0	23,605	16.7	100.9
		1949	38,841	5,323	44,164	4.0	60,765	3,718	1,959	45.8	967	37.5	18,564	16.6	76.1
Southern Region	Atlantic Coast Line	1950	11,077	21,668	32,745	2.7	32,459	2,243	1,018	31.9	880	44.7	5,124	14.5	72.4
		1949	15,118	15,484	30,602	5.1	29,402	1,886	803	30.6	742	42.2	4,005	15.7	70.9
	Central of Georgia	1950	1,970	6,339	8,309	3.5	31,532	1,803	849	30.7	984	45.0	4,460	17.6	92.4
		1949	4,011	4,099	8,110	9.0	30,442	1,709	765	29.4	766	38.4	3,519	17.8	79.1
	Gulf, Mobile & Ohio	1950	2,922	12,350	15,272	2.3	62,355	3,177	1,519	30.5	1,107	48.7	5,834	19.7	141.3
		1949	5,596	8,823	14,419	2.8	56,840	2,849	1,300	30.0	918	44.3	4,766	20.0	134.6
	Illinois Central	1950	19,389	35,292	54,681	1.8	42,388	2,502	1,184	33.8	1,128	51.2	9,301	17.2	88.1
		1949	27,679	24,007	51,686	1.5	43,064	2,463	1,122	34.0	1,018	49.6	7,968	17.7	80.3
	Louisville & Nashville	1950	28,790	16,551	45,341	9.3	34,829	2,247	1,141	36.6	940	39.2	9,159	15.6	105.0
		1949	41,713	12,360	54,073	9.7	29,243	1,889	933	35.8	720	33.1	7,699	15.5	100.0
	Nash., Chatt. & St. Louis	1950	1,142	4,394	5,536	3.1	39,754	1,852	895	30.4	1,177	51.4	6,341	21.5	90.2
		1949	3,632	3,795	7,427	10.0	37,564	1,909	849	28.3	705	36.0	4,960	19.8	113.6
	Seaboard Air Line	1950	9,142	18,177	27,319	1.7	40,949	2,379	1,080	31.6	1,023	49.3	6,325	17.7	99.7
		1949	11,842	13,491	25,333	3.9	37,919	2,214	953	31.0	903	48.0	5,371	17.5	87.1
	Southern	1950	13,204	28,818	42,022	3.7	35,752	2,158	982	28.5	959	47.6	6,291	16.7	79.6
		1949	17,162	27,812	44,974	4.1	34,771	2,045	868	28.2	760	42.6	5,556	17.1	73.2
Northwestern Region	Chicago & North Western	1950	15,987	33,826	49,813	3.8	39,454	2,531	1,173	31.5	619	28.3	3,967	16.3	76.5
		1949	23,335	28,945	52,280	3.1	36,079	2,349	1,000	30.0	501	26.9	3,246	16.1	68.2
	Chicago Great Western	1950	1,090	6,263	7,353	2.4	65,022	3,834	1,775	30.0	1,206	55.7	5,946	17.0	156.2
		1949	1,768	4,863	6,631	3.8	64,013	3,476	1,438	27.4	1,100	62.2	5,002	18.5	116.5
	Chic., Milw., St. P. & Pac.	1950	22,970	42,016	64,986	2.0	40,340	2,485	1,168	30.5	744	34.6	4,407	16.3	80.3
		1949	34,002	27,467	61,469	1.9	37,440	2,314	1,001	30.0	625	33.6	3,651	16.3	77.7
	Chic., St. P., Minn. & Omaha	1950	1,190	8,214	9,404	2.9	24,956	1,909	866	30.4	573	26.9	3,384	13.7	81.2
		1949	878	7,372	8,250	3.3	24,996	1,901	853	31.4	605	29.7	3,202	13.7	70.7
	Duluth, Missabe & Iron Range	1950	13,661	849	14,510	3.3	27,627	1,886	998	42.6	87	3.9	2,242	15.5	26.4
		1949	14,483	685	15,168	3.9	16,353	1,208	527	32.1	31	1.8	824	14.3	18.4
	Great Northern	1950	20,220	16,929	37,149	3.4	41,455	2,523	1,222	32.3	1,038	44.3	5,232	16.6	79.7
		1949	25,684	15,854	41,538	3.3	39,648	2,379	1,075	30.6	744	35.7	3,941	16.8	75.0
	Minneap., St. P. & S. St. M.	1950	5,006	8,990	13,996	5.1	36,852	2,003	975	30.7	834	37.4	2,973	18.7	111.3
		1949	6,709	7,046	13,755	6.4	37,363	2,000	900	29.6	780	40.5	2,552	18.8	107.1
	Northern Pacific	1950	16,338	13,533	29,871	4.5	43,638	2,600	1,246	32.6	1,041	44.8	5,044	16.9	78.0
		1949	21,493	12,146	33,639	6.9	40,994	2,429	1,092	32.6	816	39.1	4,360	17.2	80.7
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1950	41,594	35,570	77,164	4.1	56,533	2,699	1,048	25.6	1,194	70.5	7,131	21.1	120.4
		1949	52,446	29,469	81,915	3.8	53,211	2,578	984	25.4	906	54.3	5,572	20.8	96.1
	Chic., Burl. & Quincy	1950	14,412	28,952	43,364	2.9	53,080	2,826	1,336	31.5	1,237	56.1	6,167	18.9	82.0
		1949	19,406	21,851	41,257	4.8	48,797	2,563	1,113	29.9	950	50.4	4,612	19.1	70.7
	Chic., Rock I. & Pac.	1950	8,818	24,557	33,375	2.4	48,933	2,613	1,197	30.1	1,247	60.8	5,581	18.8	114.4
		1949	13,286	21,813	35,099	4.7	42,994	2,342	968	28.8	955	56.0	4,278	18.4	104.1
	Denver & R. G. Wn.	1950	7,489	5,619	13,108	3.0	46,883	2,809	1,376	33.6	1,057	45.3	6,134	16.8	80.7
		1949	8,866	5,476	14,342	4.1	43,522	2,435	1,202	33.2	886	35.6	5,460	18.0	72.7
	Southern Pacific	1950	24,654	43,585	68,239	2.9	47,581	2,887	1,238	27.3	1,171	60.3	10,013	16.7	93.0
		1949	28,527	38,791	67,318	3.9	46,189	2,802	1,149	27.5	1,024	56.9	8,545	16.7	87.4
	Union Pacific	1950	25,345	33,439	58,784	2.6	61,672	2,841	1,248	28.9	1,594	79.6	9,960	22.0	114.0
		1949	29,031	29,658	58,689	3.7	60,397	2,703	1,185	29.6	1,358	70.8	8,281	22.7	99.8
	Western Pacific	1950	1,634	3,268	4,902	7.7	65,385	2,978	1,314	28.2	1,887	92.2	8,459	22.1	98.5
		1949	2,417	3,587	6,004	11.5	62,384	2,854	1,303	28.8	1,426	66.5	7,082	21.9	71.4
Southwestern Region	International-Gt. Northern*	1950	723	7,055	7,778	.9	49,269	2,461	1,079	30.9	886	42.4	6,190	20.2	102.2
		1949	937	6,912	7,849	1.6	46,962	2,426	1,101	34.3	837	39.4	5,886	19.5	89.0
	Kansas City Southern	1950	1,090	5,961	7,051	2.5	68,671	3,541	1,644	30.9	1,297	60.6	10,666	19.6	109.7
		1949	1,696	5,338	7,034	4.8	61,664	3,251	1,478	31.7	1,095	53.2	8,876	19.0	105.8
	Mo.-Kans.-Texas Lines	1950	2,683	7,250	9,933	4.2	45,250	2,338	1,013	27.8	1,329	71.5	4,297	19.4	113.2
		1949	3,128	8,408	11,536	3.1	41,498	2,212	949	28.7	1,031	56.8	3,780	18.8	99.0
	Missouri Pacific*	1950	15,266	20,559	35,825	1.8	49,334	2,466	1,108	30.0	1,359	66.7	7,009	20.2	117.4
		1949	21,921	15,938	37,859	1.7	46,539	2,321	1,026	30.6	1,107	56.4	6,057	20.1	101.7
	Texas & Pacific	1950	2,375	7,209	9,584	6.5	54,609	2,667	1,038	26.6	1,321	77.2	6,898	20.5	144.6
		1949	2,627	6,839	9,466	5.5	50,274	2,518	971	26.5	1,172	71.7	5,813	20.0	100.2
	St. Louis-San Francisco	1950	6,520	13,405	19,925	3.3	40,007	2,263	1,019	29.6	1,133	56.5	5,022	17.7	74.2
		1949	12,372	11,262	23,634	3.1	37,331	2,149	921	30.2	901	48.9	4,469	17.5	78.0
	St. Louis Southw. Lines	1950	1,617	5,092	6,709	2.0	49,077	2,525	1,129	26.6	2,012	102.0	8,349	19.5	121.9
		1949	1,999	4,510	6,509	1.8	45,284	2,340	1,046	27.7	1,794	96.2	7,447	19.4	113.8
	Texas & New Orleans	1950	3,319	17,609	20,928	2.6	44,437	2,392	1,059	29.7	1,280	63.4	6,414	18.7	105.6
		1949	5,332	15,868	21,200	4.0	40,785	2,160	923	29.3	1,078	56.5	5,504	19.0	104.0

* Report of trustee or trustees.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

It's Unanimous! We All Go For GOULD-POWERED TRUCKS!



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Trucks really go when powered with Gould "Thirty" batteries—go at full power months after ordinary batteries have begun to slow down.

96% of the entire working surface of Gould's new "Z" Plate is regenerative power-producing material. The grid itself is 66% more resistant to deterioration! Grid porosity is reduced 85%. This is why the—

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"Battery trucks do more work. Always ready, they position loads faster, lift and go at the same time."

SAFETY:
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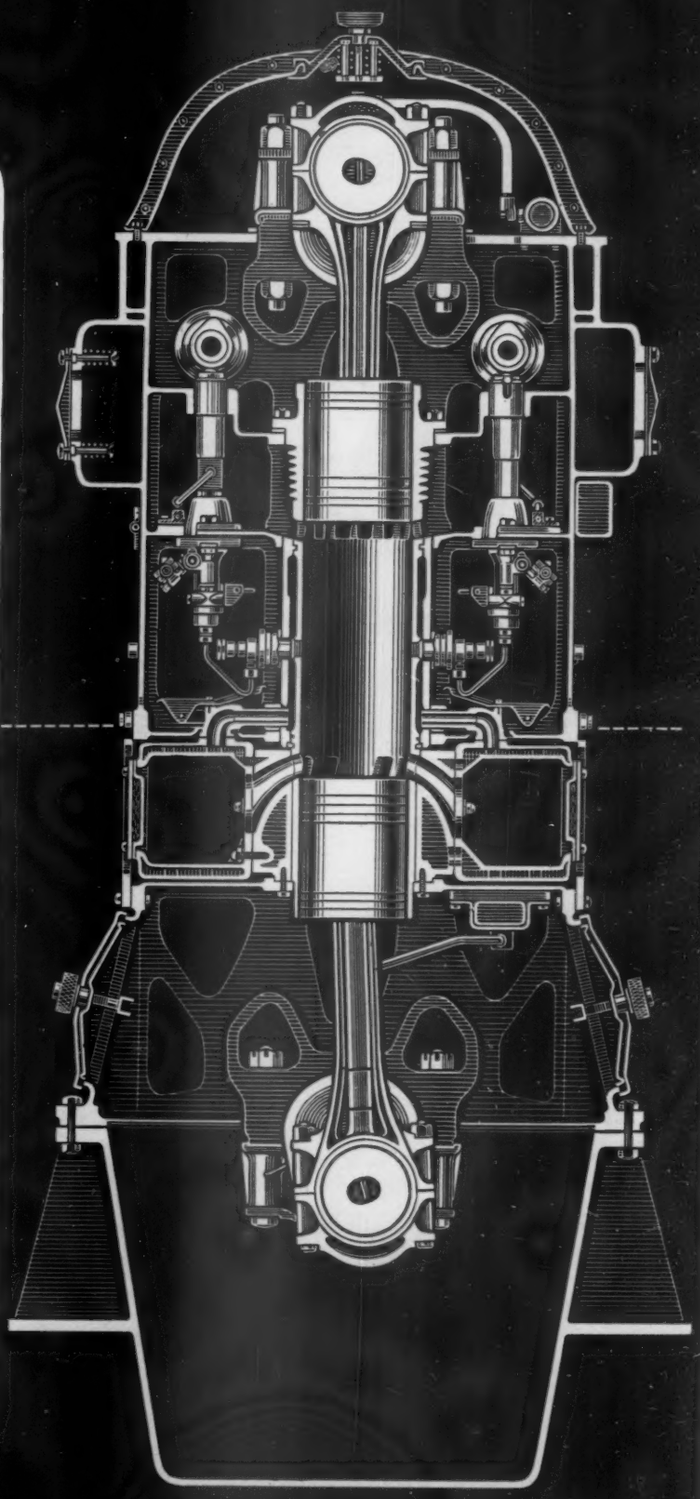

This cross-section of an Opposed-Piston diesel engine tells why, in a few short years, over 5,000,000 hp. of engines of this design have been placed in service—for low-cost public power generation, for propelling surface and undersea craft, and as prime movers of the railroad world's newest and finest diesel locomotives.

Note the design that underlies the immediate and continued success of this great engine: with TWO pistons in each cylinder—driven apart by a central combustion—the Opposed-Piston engine delivers more power per cylinder, more power per foot of floor space, more power per gallon of fuel. All this, plus the advantages of less weight, less vibration, 40% fewer moving parts. Fairbanks, Morse & Co., Chicago 5, Ill.

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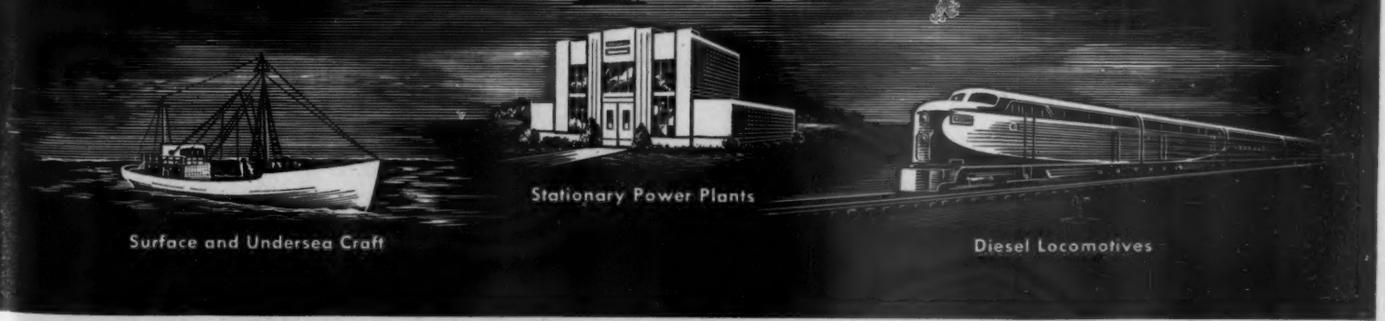


Surface and Undersea Craft

Stationary Power Plants

Diesel Locomotives

REVENUES AND EXPENSES OF RAILWAYS

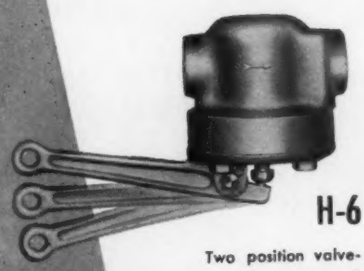
MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1951

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses						Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio			1951	1950
Akron, Canton & Youngstown	Feb.	171	398,168	17	413,510	66,004	45,688	32,113	132,081	303,579	73.4	109,931	48,499	50,783	55,864
	2 mos.	171	847,515	150	879,829	126,312	87,456	65,872	268,430	605,340	68.8	274,489	124,615	129,266	104,765
Atchison, Topeka & Santa Fe System	Feb.	13,096	32,507,971	3,695,860	39,313,806	5,906,050	7,969,913	1,089,584	13,828,270	30,511,908	77.61	8,801,898	5,026,701	3,955,540	3,614,310
	2 mos.	13,096	71,968,030	7,784,712	86,454,764	11,862,417	16,540,133	2,282,591	28,791,637	63,134,751	73.03	23,320,013	13,583,887	9,837,772	8,039,468
Atlanta & St. Andrews Bay	Feb.	82	257,937	1,728	266,763	34,010	21,677	8,175	53,695	131,022	49.1	135,741	66,225	43,345	37,039
	2 mos.	82	577,965	3,901	595,182	65,500	41,852	15,233	117,149	267,086	44.9	328,096	174,241	97,093	89,764
Atlanta & West Point	Feb.	93	250,137	42,068	326,303	46,810	50,282	15,971	156,668	294,445	90.2	31,858	10,809	—2,394	—4,629
	2 mos.	93	565,853	102,468	747,618	88,684	104,916	30,220	326,159	598,402	80.0	149,216	75,143	28,337	—4,792
Western of Alabama	Feb.	133	293,228	42,356	359,833	67,708	54,932	15,904	136,991	299,343	83.2	60,490	28,780	21,709	19,605
	2 mos.	133	632,138	101,759	789,639	121,146	114,197	30,531	291,014	602,716	76.3	186,923	100,778	67,971	53,488
Atlantic & Danville	Feb.	205	126,337	.....	129,507	24,000	8,915	9,404	39,887	94,091	72.7	35,416	10,809	11,674	1,300
	2 mos.	205	285,632	.....	293,157	56,000	16,735	20,004	96,175	212,184	72.4	80,973	21,459	30,417	2,551
Atlantic Coast Line	Feb.	5,452	10,210,062	2,040,601	13,166,727	3,033,680	2,431,026	332,104	4,933,745	11,336,862	86.1	1,829,865	950,000	385,554	1,164,151
	2 mos.	5,452	21,323,009	4,200,605	27,454,112	6,089,281	4,801,204	673,516	10,087,240	22,886,343	83.4	4,567,769	2,650,000	993,189	2,382,617
Charleston & Western Carolina	Feb.	343	492,346	11,621	517,101	122,484	74,010	15,504	146,450	368,002	71.2	149,099	70,000	70,803	27,395
	2 mos.	343	964,093	20,977	1,010,091	233,415	138,674	32,219	296,965	721,054	71.4	289,037	140,000	142,473	76,006
Baltimore & Ohio	Feb.	6,187.88	27,344,157	1,943,272	31,075,958	3,922,114	7,672,179	785,145	13,784,917	27,521,523	88.6	3,554,435	1,369,347	1,511,979	1,350,874
	2 mos.	6,187.88	58,840,923	3,979,034	66,511,005	7,860,612	15,494,253	1,571,429	28,580,646	56,357,860	84.7	10,153,145	4,043,462	4,621,497	2,280,701
Staten Island Rapid Transit	Feb.	29	216,810	43,209	264,780	45,022	35,198	1,234	132,499	242,212	91.2	22,568	35,887	—27,000	—64,681
	2 mos.	29	470,699	92,172	571,867	93,474	73,297	2,588	280,133	507,428	88.7	64,439	71,787	—37,626	—103,570
Bangor & Aroostook	Feb.	602	948,079	35,506	1,017,161	169,841	157,265	12,059	268,753	665,303	65.4	351,858	183,445	145,644	261,539
	2 mos.	602	1,826,183	73,628	1,967,974	336,630	303,270	26,150	542,779	1,322,965	67.2	645,009	317,525	274,151	457,879
Bessemer & Lake Erie	Feb.	212	1,250,233	524	1,271,504	132,415	764,009	19,856	429,077	1,423,583	112.0	—152,079	137,209	41,479	—35,178
	2 mos.	212	2,632,669	1,622	2,678,251	320,662	1,371,861	37,771	851,132	2,742,973	102.4	—64,722	440,194	140,793	18,740
Boston & Maine	Feb.	1,702	4,961,763	942,242	6,456,006	1,181,276	1,144,414	98,987	3,061,311	5,792,611	89.7	663,395	504,905	—209,761	—21,984
	2 mos.	1,702	11,002,834	1,943,114	14,185,061	2,387,505	2,343,428	204,088	6,240,548	11,815,591	83.3	2,369,470	1,303,366	322,760	163,715
Cambria & Indiana	Feb.	35	137,242	.....	137,277	10,601	83,909	96	26,605	127,243	92.7	10,034	64,956	56,117	—38,164
	2 mos.	35	292,453	.....	292,522	21,703	166,977	324	53,818	264,864	90.5	27,658	139,999	125,526	—14,543
Canadian Pacific Lines in Maine	Feb.	234	674,989	45,196	740,044	71,886	100,273	7,040	243,242	434,119	58.7	305,925	27,148	200,929	59,518
	2 mos.	234	1,380,107	93,754	1,525,502	171,613	182,042	14,183	503,068	896,067	58.7	629,435	55,290	411,371	193,810
Canadian Pacific Lines in Vermont	Feb.	90	181,764	16,673	218,331	44,418	35,279	5,868	102,961	195,758	89.7	22,573	11,258	—42,246	—73,819
	2 mos.	90	388,241	27,290	452,356	89,229	59,065	11,632	213,208	388,083	85.8	64,273	23,071	—66,597	—129,475
Central of Georgia	Feb.	1,815.29	2,981,504	281,543	3,507,686	597,485	602,967	119,147	1,539,474	3,043,421	86.8	464,265	265,506	91,714	7,517
	2 mos.	1,815.29	6,206,253	540,065	7,260,607	1,198,328	1,191,206	235,143	3,112,678	6,102,462	84.0	1,158,145	643,527	325,769	—42,944
Central of New Jersey	Feb.	410	2,454,208	425,572	3,122,058	425,309	592,674	52,045	1,765,927	3,000,573	96.1	121,485	390,110	—665,035	—488,614
	2 mos.	410	5,479,117	899,820	6,864,930	951,322	1,256,233	105,598	3,667,056	6,315,270	92.0	549,660	782,388	—980,672	—855,535
Central of Pennsylvania	Feb.	210	1,287,457	7,380	1,321,190	145,916	404,886	22,351	459,190	1,069,664	81.0	251,526	62,017	480,262	474,470
	2 mos.	210	2,934,857	16,079	3,017,007	331,964	838,494	48,553	1,000,193	2,302,172	76.3	714,835	129,659	1,175,503	1,053,935
Central of Vermont	Feb.	422	695,000	48,000	795,000	154,873	158,062	14,948	373,005	744,424	93.6	50,576	54,525	—65,310	—56,712
	2 mos.	422	1,479,000	101,000	1,689,000	268,257	318,910	29,649	771,427	1,466,137	86.8	222,863	95,782	11,661	—57,845
Chesapeake & Ohio	Feb.	5,116	23,151,093	590,550	24,696,731	3,560,940	4,896,711	584,522	9,092,784	19,189,361	77.7	5,507,370	3,494,582	2,652,201	—1,720,715
	2 mos.	5,116	49,679,246	1,324,984	52,866,149	7,260,277	10,072,448	1,096,770	18,586,195	39,197,387	74.1	13,668,762	8,780,591	5,973,932	—235,830
Chicago & Eastern Illinois	Feb.	886	2,003,585	251,237	2,476,104	348,850	405,867	111,916	973,641	1,991,410	80.4	484,694	172,200	165,236	47,028
	2 mos.	886	4,333,577	538,432	5,356,112	686,606	810,274	219,712	2,024,822	4,038,167	75.4	1,317,945	513,700	529,222	179,101
Chicago & Illinois Midland	Feb.	130	560,239	189	572,646	91,936	141,634	26,387	173,285	465,769	81.3	106,877	35,657	58,543	—180,171
	2 mos.	130	1,473,168	383	1,505,717	196,516	301,288	61,208	412,505	1,041,895	69.2	463,822	219,334	215,127	—165,296
Chicago & North Western	Feb.	7,923	9,780,708	1,581,096	12,839,376	2,070,359	2,959,694	330,122	7,176,994	13,298,182	103.6	—458,806	681,909	—1,476,656	—903,532
	2 mos.	7,923	22,908,171	3,362,266	29,555,525	4,196,551	5,947,806	628,693	14,933,100	27,231,913	92.1	2,323,612	2,077,276	—498,688	—1,508,617
Chicago, Burlington & Quincy	Feb.	8,822	17,023,384	1,124,661	19,827,164	1,855,516	3,136,120	412,527	7,449,025	13,506,207	68.1	6,320,957	3,027,895	2,738,271	1,673,130
	2 mos.	8,822	35,060,936	2,555,368	41,179,048	4,100,920	6,258,873	827,073	15,352,395	27,956,916	67.9	13,240,132	6,555,864	5,623,645	3,130,373
Chicago Great Western	Feb.	1,474	2,415,654	18,108	2,601,107	404,852	380,049	97,000	884,124	1,826,672	70.2	774,435	138,769	297,864	288,895
	2 mos.	1,474	5,205,303	55,176	5,599,913	813,306	740,592	200,737	1,917,893	3,812,379	68.1	1,787,534	515,374	612,012	600,729
Chicago, Indianapolis & Louisville	Feb.	541	1,451,177	91,462	1,632,789	292,204	262,769	79,026	565,324	1,289,429	79.0	343,360	119,183	105,627	146,285
	2 mos.	541	3,050,880	180,709	3,439,038	580,885	534,291	161,016	1,209,677	2,674,948	77.8	764,090	288,832	249,823	101,018
Chicago, Milwaukee, St. Paul & Pacific	Feb.	10,671	14,366,516	1,309,184	17,468,483	2,435,783	3,997,219	440,396	8,661,903	16,485,028	94.4	983,455	623,000	—318,480	—941,544
	2 mos.	10,671	32,458,977	2,806,472	39,158,090	4,842,889	8,053,389	851,756	18,125,755	33,816,255	86.4	5,341,835	2,887,000	1,161,438	—2,024,601
Chicago, Rock Island & Pacific	Feb.	7,925	12,208,072	1,569,817	14,958,259	1,729,134	2,580,223	470,179	6,318,786	11,875,318	79.4	3,082,941	1,346,087	805,600	813,794
	2 mos.	7,925	26,343,019	3,458,905	32,453,171	3,355,633	5,035,236	935,735	12,871,440	23,789,269	73.3	8,663,902	3,894,478	3,017,261	1,549,602
Chicago, St. Paul, Minn. & Omaha	Feb.	1,617	1,929,754	161,253	2,281,659	293,439	427,716	62,106	1,373,865	2,273,311	99.6	8,348	175,640	—336,304	—20,887
	2 mos.	1,617	4,326,338	358,829	5,074,175	608,087	852,049	120,571	2,931,169	4,753,068	93.7	321,107	359,204	—354,778	—208,025
Clinchfield	Feb.	317	2,053,156	1,312	2,065,625	242,745	313,889	39,378	455,859	1,085,295	52.5	980,330	187,150	915,172	240,150
	2 mos.	317	4,154,276	2,733	4,179,080	498,629	630,714	76,160	871,551	2,143,366	51.3	2,035,714	376,000	1,929,593	746,659

(Table continued on next left-hand page)

Westinghouse E-2B Multibell Horn

for Dominant, Distinctive Warnings



H-6

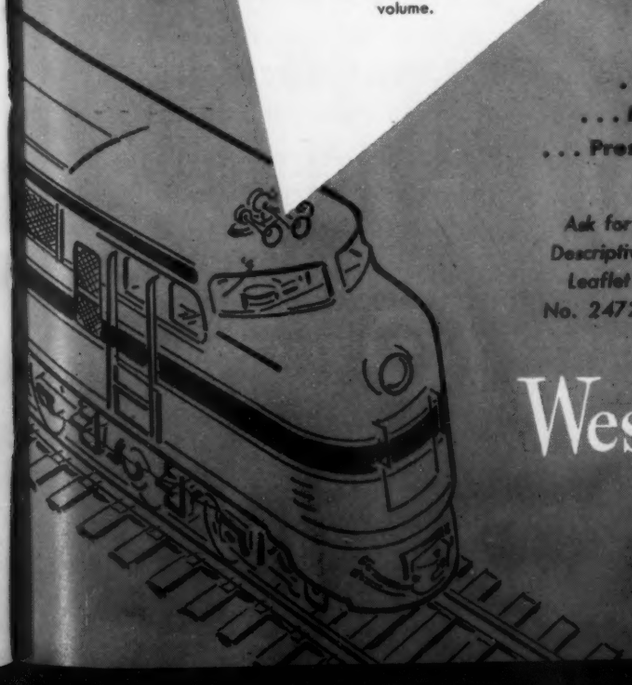
Two position valve-positive selection of "city" or "country" volume.

It *dominates*—because its melodious, F-Major tone achieves the highest range of audibility, with a minimum number of standard bells.

. . . Modern design—blends with Diesel lines.
. . . No new operating parts to carry in maintenance stocks.
. . . Minimum maintenance—cannot vibrate out of adjustment.
. . . Completely interchangeable with most present mounting bases.
. . . Metallic Diaphragm—proven by test and 15 years of service.
. . . Present E-2 horns easily converted to new E-2B.

Ask for Descriptive Leaflet No. 2472-1

LET YOUR EAR BE THE JUDGE. Listen to the phonographic recording of the E-2B as well as other types and combinations—all on the same disc for direct comparison. Call or write our district representative for an audition.



Westinghouse Air Brake Co.

WILMERDING, PA.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1951

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses						Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio			1951	1950
Colorado & Southern	Feb.	739	1,004,692	100,711	1,191,266	131,243	182,795	24,350	448,008	842,337	70.7	348,929	193,795	106,351	95,874
	2 mos.	739	2,047,772	188,434	2,425,220	253,287	358,662	52,622	938,641	1,714,260	70.7	710,960	389,405	224,566	146,641
Ft. Worth & Denver City	Feb.	804	1,299,979	170,012	1,612,632	205,381	194,850	44,887	596,044	1,129,450	70.0	483,182	179,267	207,457	191,538
	2 mos.	804	2,670,028	341,535	3,315,757	445,887	431,858	96,927	1,246,902	2,412,642	72.8	903,115	327,316	367,969	475,377
Colorado & Wyoming	Feb.	41	120,394	.....	256,092	17,572	24,285	927	113,700	167,419	65.3	88,673	33,357	54,171	19,523
	2 mos.	41	287,358	.....	543,099	36,260	47,121	2,175	216,581	324,390	59.7	218,709	119,373	97,755	42,370
Columbus & Greenville	Feb.	168	147,525	—1	158,632	33,988	27,177	4,064	50,101	132,009	85.9	21,623	17,137	6,914	13,228
	2 mos.	168	338,362	24	351,736	74,490	58,545	6,915	102,746	277,271	78.8	74,465	44,552	37,132	21,630
Delaware & Hudson	Feb.	793	4,056,440	144,068	4,306,319	487,540	943,603	72,959	1,758,489	3,475,484	80.7	830,835	482,341	373,111	80,053
	2 mos.	793	9,012,175	322,938	9,559,201	987,686	1,940,903	146,996	3,654,521	7,135,247	74.6	2,423,954	1,378,393	1,130,871	518,585
Delaware, Lackawanna & Western	Feb.	966	5,158,296	770,565	6,396,075	691,521	1,223,465	158,026	3,094,191	5,400,874	84.4	995,201	544,176	425,933	151,768
	2 mos.	966	11,051,641	1,643,317	13,734,651	1,393,467	2,522,328	315,358	6,423,184	11,159,681	81.3	2,574,970	1,373,180	1,140,413	453,063
Denver & Rio Grande Western	Feb.	2,334	4,990,340	246,688	5,424,429	510,108	963,043	130,020	1,752,212	3,574,633	65.9	1,849,796	935,228	918,081	252,606
	2 mos.	2,360	10,718,724	557,111	11,693,803	1,052,419	2,232,467	310,766	3,935,843	8,038,611	68.7	3,655,192	1,880,432	1,805,735	631,758
Detroit & Mackinac	Feb.	232	122,755	227	128,467	40,225	19,690	2,284	32,978	104,418	81.2	24,049	15,439	8,742	19,522
	2 mos.	232	284,878	650	298,723	80,225	39,832	5,167	70,381	213,000	71.3	85,723	52,494	31,050	41,556
Detroit & Toledo Shore Line	Feb.	50	627,394	.....	631,130	72,288	55,916	13,279	199,874	352,964	55.9	278,166	110,654	73,153	80,003
	2 mos.	50	1,360,604	.....	1,367,917	143,957	104,998	26,369	412,129	711,885	52.0	656,032	285,917	163,744	177,497
Detroit, Toledo & Ironton	Feb.	464	1,582,709	331	1,635,855	165,549	242,877	27,279	440,222	918,520	56.1	717,335	379,232	304,381	195,499
	2 mos.	464	3,341,998	720	3,468,634	330,581	465,848	53,837	882,102	1,831,980	52.8	1,636,654	862,132	671,574	525,606
Duluth, Missabe & Iron Range	Feb.	564	593,845	840	632,355	555,736	652,178	8,228	659,363	1,951,569	308.6	—1,319,214	59,077	—1,237,022	—1,395,776
	2 mos.	564	1,261,177	2,779	1,343,904	1,127,739	1,341,195	16,810	1,355,696	3,998,921	297.6	—2,655,017	177,573	—2,697,579	—2,938,808
Duluth, South Shore & Atlantic	Feb.	539	672,052	6,415	697,017	92,861	114,253	19,577	289,938	533,961	76.6	163,056	25,396	97,878	45,581
	2 mos.	539	1,229,917	15,461	1,288,475	183,991	224,913	40,298	557,791	1,041,477	80.8	246,998	51,121	140,840	—27,845
Duluth, Winnipeg & Pacific	Feb.	175	419,000	500	425,100	64,026	59,920	4,306	189,786	323,580	76.1	101,520	31,758	21,262	—25,525
	2 mos.	175	839,000	1,300	851,300	111,264	118,978	8,695	376,676	627,738	73.7	223,562	63,779	53,315	—83,174
Elgin, Joliet & Eastern	Feb.	238	2,836,497	3	3,728,775	325,324	600,577	27,904	1,420,144	2,504,720	67.2	1,224,055	509,222	224,674	578,722
	2 mos.	238	6,514,116	3	8,317,353	677,847	1,207,918	60,911	3,030,845	5,256,200	63.2	3,061,153	1,395,764	643,360	1,245,000
Erie	Feb.	2,245	12,100,720	515,092	13,394,308	1,479,425	2,185,972	345,891	5,616,903	10,282,035	76.8	3,112,273	1,456,493	1,198,345	852,432
	2 mos.	2,245	25,326,480	1,189,101	28,235,080	2,983,826	4,332,078	699,619	11,692,640	21,031,955	74.5	7,203,125	3,405,081	2,913,446	1,815,352
Florida East Coast	Feb.	571	1,707,839	976,207	2,969,993	285,418	381,637	65,901	993,023	1,918,572	64.6	1,051,421	321,910	536,850	588,403
	2 mos.	571	3,597,663	1,792,701	5,936,845	697,714	839,401	131,676	2,009,674	4,044,119	68.1	1,892,726	560,627	1,002,471	1,005,910
Georgia Railroad	Feb.	326	621,085	88,937	752,961	113,350	121,979	30,466	288,959	592,664	78.7	160,297	35,368	129,593	38,059
	2 mos.	326	1,356,293	141,483	1,588,210	222,005	247,072	58,960	608,423	1,210,165	76.2	378,045	70,885	320,113	82,945
Georgia & Florida	Feb.	359	257,111	13	261,421	75,341	32,541	18,187	84,491	223,149	85.4	38,272	15,879	1,887	—26,164
	2 mos.	359	567,498	24	577,506	162,153	64,273	35,944	169,548	456,669	79.1	120,837	32,153	44,180	—47,596
Grand Trunk Western	Feb.	974	3,730,000	206,000	4,360,000	526,641	772,750	67,935	1,869,458	3,404,599	78.1	955,401	254,586	497,300	—97,396
	2 mos.	974	8,089,000	436,000	9,289,000	1,060,007	1,692,118	135,510	4,000,514	7,212,444	77.6	2,076,556	520,816	1,136,053	156,455
Canadian Natl. Lines in New Engl.	Feb.	172	170,000	7,000	204,000	40,530	30,566	2,692	130,140	218,626	107.2	—4,626	22,746	—83,325	—43,506
	2 mos.	172	365,000	14,000	476,000	94,701	90,526	5,389	276,556	499,013	104.8	—23,013	45,492	—149,280	—193,003
Great Northern	Feb.	8,316	12 442,975	915,481	14,345,732	2,980,859	3,382,932	351,243	6,046,188	13,543,910	94.4	801,822	1,411,951	—555,650	—1,584,441
	2 mos.	8,316	25,962,776	1,894,089	29,906,259	5,750,600	6,780,865	710,146	12,678,324	27,396,799	91.6	2,509,460	2,903,848	—363,707	—5,076,328
Green Bay & Western	Feb.	224	348,255	.....	353,117	73,670	35,350	17,678	91,690	232,933	66.0	120,184	57,370	49,018	38,723
	2 mos.	224	700,180	.....	711,389	147,551	82,139	39,056	173,581	471,969	66.3	239,420	113,752	107,769	73,475
Gulf, Mobile & Ohio	Feb.	2,898	5,993,892	375,303	6,825,544	1,084,828	1,352,542	240,036	2,024,046	5,001,633	73.3	1,823,911	759,359	642,528	489,243
	2 mos.	2,898	12,160,851	870,350	13,969,901	2,134,036	2,751,956	515,860	4,353,975	10,465,049	74.9	3,504,852	1,491,589	1,246,183	875,315
Illinois Terminal	Feb.	462	590,587	77,477	760,513	128,844	125,660	33,621	338,435	672,108	88.38	88,405	56,291	17,344	45,782
	2 mos.	462	1,400,895	159,744	1,763,616	264,682	274,391	70,130	730,146	1,437,733	81.52	325,883	175,155	113,958	62,921
Illinois Central	Feb.	6,539	18,460,878	1,726,736	22,114,814	3,425,738	4,133,558	483,650	8,433,622	17,445,948	78.9	4,668,866	2,667,031	1,580,424	1,772,889
	2 mos.	6,539	39,056,945	3,680,414	46,962,051	7,001,158	8,467,805	999,914	17,869,090	36,342,391	77.4	10,619,660	5,919,475	3,885,248	3,755,297
Kansas City Southern	Feb.	891	3,119,974	123,095	3,520,254	373,653	416,726	76,915	1,006,933	1,991,371	56.6	1,528,883	765,000	583,801	666,009
	2 mos.	891	6,481,800	267,477	7,331,547	708,209	796,007	155,086	2,109,172	3,997,206	54.5	3,334,341	1,635,000	1,279,051	1,454,189
Kansas, Oklahoma & Gulf	Feb.	327	499,961	497	504,625	30,961	38,485	17,773	108,103	214,440	42.5	290,185	134,632	121,777	91,088
	2 mos.	327	1,049,869	1,101	1,061,067	67,220	79,141	36,460	221,062	444,048	41.8	617,019	285,285	261,682	186,239
Lake Superior & Ishpeming	Feb.	156	59,620	19	62,839	40,636	52,444	1,685	52,008	155,259	247.0	—92,420	26,028	—100,816	—97,232
	2 mos.	156	117,671	41	124,943	79,004	104,767	3,826	102,317	307,265	245.9	—182,322	52,770	—207,400	—197,096
Lehigh & Hudson River	Feb.	96	257,716	.....	262,504	33,887	22,652	10,415	75,219	151,340	57.7	111,164	52,104	48,039	—1,139
	2 mos.	96	528,988	.....	535,560	73,045	49,644	20,492	151,593	315,092	58.8	220,468	100,380	89,799	—256
Lehigh & New England	Feb.	191	577,775	.....	582,659	63,689	111,142	12,201	173,707	396,091	68.0	186,568	116,902	110,824	37,120
	2 mos.	191	1,267,678	.....	1,279,230	123,156	222,843	23,241	374,218	819,652	64.1	459,578	258,096	257,921	94,881
Lehigh Valley	Feb.	1,229	5,133,443	262,434	5,651,212	679,072	1,208,942	132,066	2,482,790	4,739,703	83.9	911,509	415,620	382,951	—82,025
	2 mos.	1,229	11,120,479	615,892	12,268,020	1,405,309	2,754,333	268,536	5,081,716	10,001,538	81.5	2,266,482	1,049,905	1,020,162	41,357
Long Island	Feb.	365	1,027,007	2,323,076	3,541,820	545,491	796,460	10,217	2,206,873	3,697,852	104.4	—156,032	467,750	—901,596	—665,599
	2 mos.	365	2,254,381	4,885,370	7,565,564	1,126,463	1,576,271	21,805	4,476,917	7,468,937	98.7	96,627	945,548	—1,387,239	—1,291,052

(Table continued on next left-hand page)

...in 8 hours

FROM THIS..TO THIS

with Glidden

"TWO-A-DAY" PAINTING!

Two complete coats of paint *in just one day* . . . that's Glidden "TWO-A-DAY" Painting, under favorable weather conditions. With Glidden quick-drying paints, vitally-needed freight cars require a minimum of time on the non-revenue paint tracks. Weather-beaten equipment goes back into service *fast,* new-looking and lastingly-protected against the elements.

Glidden Railroad Technical Service—responsible for the development of "TWO-A-DAY" Painting and other special finishes for America's leading roads—is ready NOW to work for you on any problem involving paint or painting procedure. A competent serviceman from one of our eight strategically located plants will be glad to visit you at any time. Write to: The Glidden Company, 11001 Madison Avenue, Cleveland 2, Ohio. In Canada, The Glidden Company Limited, Toronto.

Glidden

RAILWAY FINISHES

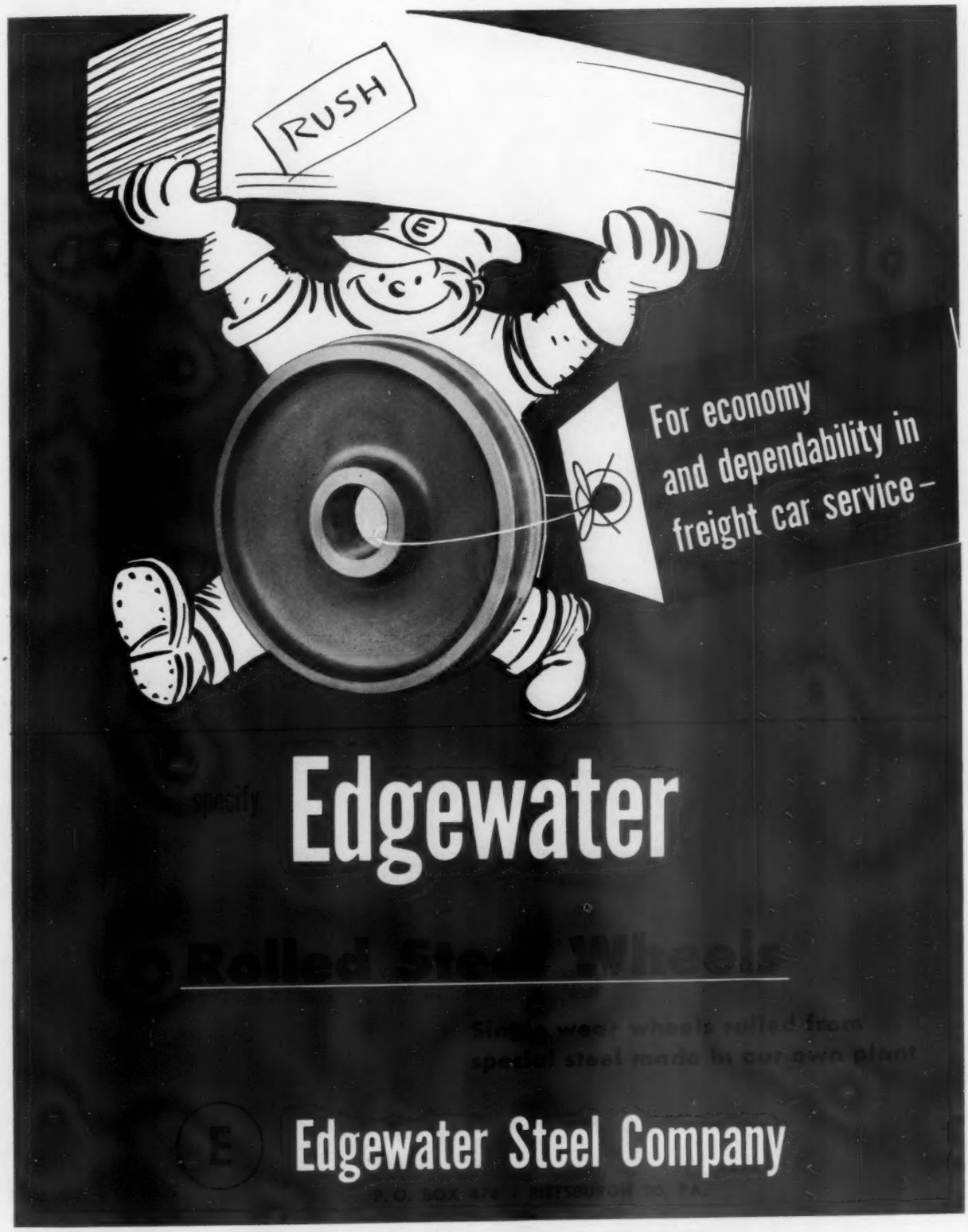
QUALITY Glidden PRODUCTS

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1951

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total				1951	1950
Louisiana & Arkansas	Feb.	756	1,639,700	55,200	1,770,914	329,614	209,245	63,059	485,708	1,159,407	65.5	611,507	317,090	198,790	270,353
	2 mos.	756	3,540,500	132,300	3,820,161	672,239	453,853	127,266	1,055,535	2,449,642	64.1	1,370,519	673,173	447,477	617,059
Louisville & Nashville	Feb.	4,778	14,298,985	1,195,983	16,379,439	2,489,033	3,521,288	332,604	6,797,299	13,758,295	84.0	2,621,144	2,195,386	1,052,695	443,740
	2 mos.	4,778	31,446,631	2,568,793	36,101,206	4,845,425	7,006,700	631,811	14,075,398	27,829,580	77.1	8,271,626	5,918,184	3,672,595	1,433,653
Maine Central	Feb.	981	1,868,897	117,530	2,083,137	351,985	347,327	19,786	751,096	1,536,425	73.8	546,712	265,177	215,966	168,773
	2 mos.	981	3,937,950	231,120	4,395,460	722,256	716,307	39,632	1,492,818	3,104,850	70.6	1,290,610	651,433	523,110	379,713
Midland Valley	Feb.	334	147,389	6	149,989	32,660	17,745	3,680	49,578	110,868	73.9	39,121	29,849	—3,502	26,225
	2 mos.	334	341,996	16	347,327	68,689	30,179	8,275	104,890	226,774	65.3	120,553	47,996	48,272	68,595
Minneapolis & St. Louis	Feb.	1,406	1,439,518	15,893	1,503,246	273,099	253,032	107,888	510,983	1,253,030	83.4	250,216	158,665	31,809	35,289
	2 mos.	1,406	3,272,997	36,938	3,418,629	548,740	511,467	225,318	1,132,293	2,640,298	77.2	778,331	429,768	246,115	64,336
Minneapolis, St. Paul & S. S. Marie	Feb.	3,224	2,307,430	57,192	2,472,335	512,328	634,276	66,628	1,188,516	2,515,501	101.7	—43,166	207,243	—282,635	—447,710
	2 mos.	3,224	4,822,603	131,926	5,215,947	986,462	1,270,651	137,388	2,468,322	5,091,151	97.6	124,796	417,677	—283,398	—957,756
Mississippi Central	Feb.	148	182,911	109	186,813	38,989	25,616	12,812	52,032	140,786	75.4	46,027	20,699	13,577	11,745
	2 mos.	148	399,152	—3	407,686	78,444	55,151	25,842	112,052	292,094	71.7	115,592	45,587	42,637	25,895
Missouri-Illinois	Feb.	172	359,496	127	363,284	47,955	58,148	6,915	110,268	231,576	63.7	131,708	89,331	51,822	55,843
	2 mos.	172	788,253	304	801,067	108,310	126,489	15,086	211,976	478,637	59.7	322,430	212,322	126,295	125,766
Missouri-Kansas-Texas Lines	Feb.	3,243	5,096,655	413,954	5,966,085	770,630	950,466	230,714	2,301,810	4,550,642	76.3	1,415,443	640,932	512,758	495,811
	2 mos.	3,243	10,892,151	1,184,134	13,187,649	1,619,668	1,882,831	463,446	4,963,773	9,566,956	72.5	3,620,693	1,771,031	1,288,286	965,031
Missouri Pacific	Feb.	6,960	13,805,870	877,726	16,187,566	2,892,824	3,436,948	424,860	6,928,467	14,266,899	88.1	1,920,667	450,248	1,058,358	1,483,714
	2 mos.	6,960	31,427,416	2,049,253	36,738,042	6,019,647	.....	861,399	14,321,716	29,508,032	80.3	7,230,010	2,799,321	3,475,218	2,897,188
Gulf Coast Lines	Feb.	1,727	2,969,055	98,436	3,250,049	730,507	543,448	76,105	1,153,647	2,646,386	81.4	603,663	139,301	297,593	488,066
	2 mos.	1,727	6,839,041	247,174	7,483,529	1,480,384	1,102,422	157,478	2,460,844	5,488,417	73.3	1,995,112	742,105	757,619	1,161,043
International-Great Northern	Feb.	1,104	2,168,619	191,927	2,597,077	597,499	482,465	50,388	1,155,419	2,414,966	93.0	182,111	15,162	85,740	245,632
	2 mos.	1,104	4,785,614	555,028	5,856,011	1,264,330	982,502	101,881	2,376,859	5,002,849	85.4	853,162	252,066	367,226	644,173
Monongahela	Feb.	178	497,196	—42	501,462	72,200	73,292	1,185	220,144	371,639	74.1	129,823	64,008	—55,162	—158,181
	2 mos.	178	1,261,863	44	1,270,839	154,280	159,703	2,182	480,125	806,170	63.4	464,669	128,515	63,735	—280,427
Montour	Feb.	51	204,838	.....	205,466	17,595	84,554	893	88,831	200,522	97.6	4,944	37,004	27,049	14,984
	2 mos.	51	433,698	.....	434,893	22,828	172,170	1,586	182,453	398,184	91.6	36,709	79,151	70,830	45,020
Nashville, Chatt. & St. Louis	Feb.	1,049	2,499,395	176,830	2,898,329	480,672	395,230	105,432	1,063,601	2,155,924	74.4	742,405	404,318	346,219	291,345
	2 mos.	1,049	5,185,812	366,887	6,067,996	887,705	837,390	221,638	2,218,910	4,387,790	72.3	1,680,206	899,009	800,385	644,794
New York Central	Feb.	10,727	40,569,637	7,741,438	53,756,136	8,000,590	13,323,050	1,085,000	29,488,636	54,984,062	102.3	—1,227,926	4,902,081	—8,076,684	—3,341,107
	2 mos.	10,727	91,828,214	18,678,352	122,810,188	17,116,360	27,537,249	2,094,096	61,614,296	114,549,629	93.3	8,260,559	9,952,084	—5,694,278	—3,426,746
Pittsburgh & Lake Erie	Feb.	221	3,317,829	77,904	3,576,714	442,699	1,059,013	70,690	1,502,856	3,263,892	91.3	312,822	488,642	467,972	217,246
	2 mos.	221	7,206,966	177,545	7,754,348	946,634	2,211,794	147,088	2,978,312	6,683,492	86.2	1,070,856	1,297,390	1,155,591	774,217
New York, Chicago & St. Louis	Feb.	2,192	9,746,465	164,187	10,263,962	1,345,236	2,053,243	291,727	3,949,099	8,030,852	78.2	2,233,110	854,891	947,612	1,382,037
	2 mos.	2,192	23,292,951	357,616	24,385,637	2,882,799	4,083,574	591,371	9,112,154	17,513,289	71.8	6,872,348	3,139,601	2,744,878	2,673,363
New York, New Haven & Hartford	Feb.	1,794	6,812,912	3,152,798	11,087,733	1,676,156	1,985,522	176,240	5,359,263	9,802,370	88.4	1,285,363	500,000	—82,477	671,259
	2 mos.	1,794	14,637,856	7,491,487	24,575,804	3,333,614	4,043,018	344,934	11,015,595	20,022,382	81.5	4,553,422	1,785,000	1,019,503	1,693,708
New York Connecting	Feb.	21	216,202	.....	216,203	84,596	979	.....	48,033	136,014	62.9	80,189	70,665	24,424	—2,388
	2 mos.	21	474,248	.....	486,390	153,495	20,167	.....	107,710	286,225	58.8	200,165	137,084	105,265	72,859
New York, Ontario & Western	Feb.	542	507,708	105	529,202	96,899	82,602	25,726	262,249	495,115	93.6	34,087	35,083	—64,270	—138,970
	2 mos.	542	1,123,350	244	1,175,919	178,685	165,050	50,079	550,738	1,002,534	85.3	173,385	71,385	—31,301	—263,214
New York, Susquehanna & Western	Feb.	120	346,153	36,064	400,320	49,101	47,431	9,370	183,015	317,501	79.3	82,819	31,319	17,946	35,891
	2 mos.	120	745,418	79,786	861,226	99,355	94,486	16,219	370,028	631,519	73.3	229,707	62,983	93,251	101,925
Norfolk & Western	Feb.	2,135	12,757,982	452,750	13,803,567	2,183,278	3,188,299	289,783	4,775,983	10,982,948	79.6	2,820,619	2,083,485	1,688,217	—672,747
	2 mos.	2,135	27,955,678	902,417	30,077,043	4,251,335	6,556,311	541,613	9,713,250	22,216,247	73.9	7,860,796	5,986,431	3,959,946	812,309
Norfolk Southern	Feb.	643	820,212	29	842,327	152,628	111,473	46,923	281,332	658,526	78.2	183,801	83,467	64,147	19,054
	2 mos.	643	1,690,240	29	1,741,933	309,030	220,643	91,157	587,781	1,344,681	77.2	397,252	200,608	117,065	82,233
Northern Pacific	Feb.	6,887	9,185,088	488,638	10,464,123	1,814,113	2,557,330	238,604	4,766,310	9,970,557	95.3	493,566	1,128,565	—89,400	—1,220,245
	2 mos.	6,887	19,578,604	1,108,126	22,411,184	3,514,533	5,182,438	499,541	9,867,051	20,316,693	90.7	2,094,491	2,308,818	876,271	—3,363,824
Northwestern Pacific	Feb.	331	679,229	1,550	699,720	256,154	81,044	4,915	353,034	709,699	101.4	—9,979	46,396	—130,072	44,359
	2 mos.	331	1,451,285	6,841	1,498,304	465,931	179,512	8,136	720,579	1,405,658	93.8	92,646	95,920	—132,637	—75,230
Oklahoma City-Ada-Atoka	Feb.	132	79,571	.....	80,274	17,549	2,669	1,344	21,663	46,465	57.9	33,809	16,345	8,942	9,053
	2 mos.	132	173,287	.....	174,998	36,581	5,128	3,277	43,436	94,916	54.2	80,082	35,696	21,194	14,488
Pennsylvania	Feb.	10,127	50,629,215	10,885,309	67,591,251	9,591,903	19,140,256	1,311,944	36,480,852	69,682,521	103.1	—2,091,270	4,401,566	—7,686,892	—2,788,096
	2 mos.	10,127	113,133,940	25,001,534	151,527,409	18,687,725	40,336,076	2,549,466	73,664,088	141,606,606	93.5	9,920,803	9,849,359	—2,803,071	2,212,496
Pennsylvania-Reading Seashore Lines	Feb.	365	430,179	106,395	565,145	252,691	101,136	8,394	524,621	919,116	162.6	—353,971	93,218	—570,726	—620,442
	2 mos.	369	1,043,975	218,846	1,329,460	454,116	188,592	18,038	1,061,918	1,791,905	134.8	—462,445	187,484	—902,467	—1,271,915

(Table continued on next left-hand page)



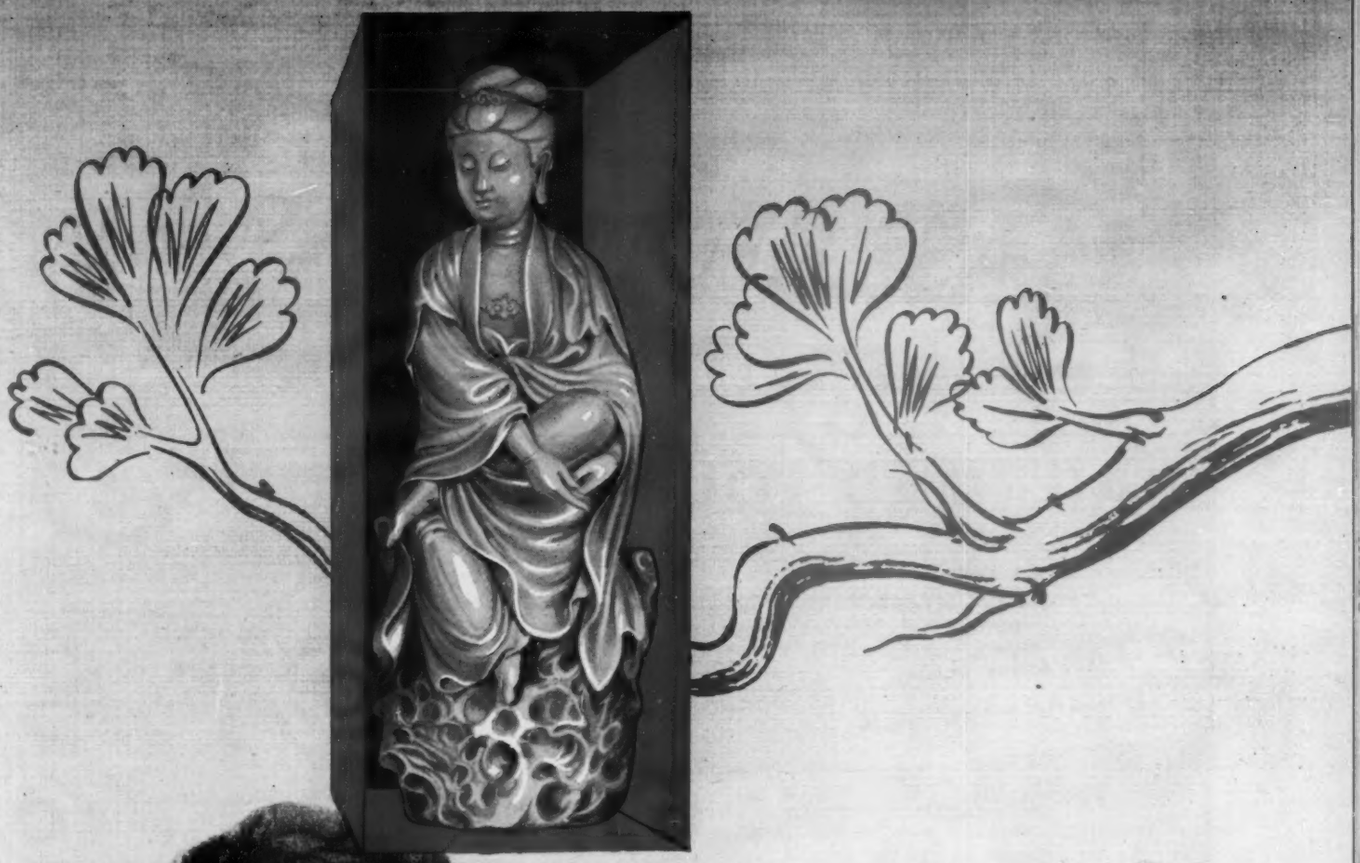
Makers of Freight Car Passenger Car and Diesel Locomotive
Rolled Steel Wheels

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1951

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total				1951	1950
Pittsburg & Shawmut	Feb.	97	181,133	.....	183,658	19,837	52,381	2,902	54,475	137,631	74.9	46,027	5,558	35,222	—8,625
	2 mos.	97	421,907	.....	425,335	39,769	105,554	6,661	116,997	284,528	66.9	140,807	35,913	95,183	33,937
Pittsburgh & West Virginia	Feb.	132	515,590	.....	521,382	94,985	142,759	45,366	162,737	471,780	90.5	49,602	48,544	70,415	64,851
	2 mos.	132	1,276,049	.....	1,302,901	239,893	305,386	95,746	379,189	1,075,129	82.5	227,772	152,913	195,154	157,346
Reading	Feb.	1,313	8,318,568	545,033	9,494,414	1,198,155	2,009,156	134,216	4,113,888	7,767,047	81.8	1,727,367	875,970	793,584	344,295
	2 mos.	1,315	18,003,126	1,144,990	20,450,857	2,508,495	4,110,174	271,056	8,571,967	16,098,414	78.7	4,352,443	2,311,129	2,004,246	974,478
Richmond, Fredericksburg & Potomac	Feb.	118	1,309,620	574,729	2,075,148	218,683	264,545	17,531	708,570	1,342,903	64.7	732,245	370,866	275,612	215,983
	2 mos.	118	2,716,144	1,226,015	4,374,581	437,171	526,321	36,951	1,447,145	2,717,260	62.1	1,657,321	854,734	629,812	417,622
Rutland	Feb.	407	305,676	27,314	392,535	83,318	89,890	14,338	236,466	442,110	112.6	—49,575	31,049	—99,498	—76,507
	2 mos.	407	700,876	56,740	891,573	161,562	170,705	28,667	498,667	899,052	100.8	—7,479	63,166	—108,966	—143,861
Sacramento Northern	Feb.	271	257,454	14	262,500	50,635	17,627	1,963	84,529	162,593	61.94	99,907	12,981	72,076	7,880
	2 mos.	271	516,841	14	528,367	102,664	36,178	4,312	163,952	323,946	61.31	204,421	26,046	142,651	—10,109
St. Louis-San Francisco	Feb.	4,635	7,735,732	734,030	9,091,664	1,680,979	1,624,456	256,839	3,485,236	7,485,389	82.3	1,606,275	942 647	727,030	635,194
	2 mos.	4,635	16,600,929	1,415,028	19,364,681	3,302,332	3,403,328	510,546	7,293,464	15,406,841	79.6	3,957,840	2,295,964	1,853,463	1,209,980
St. Louis, San Francisco & Texas	Feb.	159	413,398	13,448	451,484	46,794	39,309	20,620	142,089	259,387	57.5	192,097	91,022	55,810	—2,022
	2 mos.	159	715,183	18,979	782,351	90,969	70,652	36,728	277,349	497,820	63.6	284,531	116,927	75,160	—18,404
St. Louis Southwestern Lines*	Feb.	1,569	4,249,545	54,078	4,463,943	500,930	590,826	149,201	1,611,859	3,019,412	67.6	1,444,531	421,533	722,389	607,881
	2 mos.	1,569	10,159,231	122,639	10,645,528	1,063,752	1,234,533	298,333	3,330,973	6,273,609	58.9	4,371,919	2,286,891	1,558,870	1,295,780
Seaboard Air Line	Feb.	4,146	10,204,663	1,372,181	12,388,690	2,169,990	2,161,751	341,978	4,202,937	9,413,817	76.0	2,974,873	1,456,787	1,211,322	1,002,115
	2 mos.	4,146	21,267,517	2,945,237	25,940,576	4,320,718	4,314,913	673.740	8,683,045	19,069,774	73.5	6,870,802	3,318,270	2,835,661	2,078,906
Southern	Feb.	6,344	16,253,830	1,562,094	18,959,493	2,879,503	3,908,085	390,906	6,913,495	14,914,560	78.7	4,044,933	1,855,141	1,448,781	1,667,082
	2 mos.	6,344	35,028,089	3,028,498	40,732,515	5,855,148	7,808,925	767,071	14,657,169	30,752,133	75.5	9,980,382	4,828,369	3,752,985	3,588,591
Alabama Great Southern	Feb.	316	1,281,586	82,004	1,458,641	197,619	354,772	32,637	500,791	1,132,941	77.7	325,700	234,791	131,194	164,344
	2 mos.	316	2,615,785	192,380	3,032,283	424,212	733,316	64,722	1,060,343	2,388,812	78.8	643,471	446,191	277,524	304,630
Cinn., New Orleans & Texas Pacific	Feb.	336	2,766,661	236,735	3,162,598	435,571	767,012	63,613	897,648	2,287,242	72.3	875,356	560,425	390,202	479,592
	2 mos.	336	5,772,845	506,912	6,617,200	871,029	1,523,129	123.902	1,839,359	4,602,902	69.6	2,014,298	1,267,583	911,069	987,031
Georgia Southern & Florida	Feb.	397	497,814	98,045	645,778	145,594	57,043	8,039	205,125	438,667	67.9	207,111	53,416	45,621	52,648
	2 mos.	397	1,076,209	201,557	1,388,195	304,335	120,900	15,465	418,806	911,402	65.7	476,793	147,801	112,664	117,647
New Orleans & Northeastern	Feb.	203	851,989	45,013	934,778	163,928	120,301	19,698	226,888	566,176	60.6	368,602	216,587	118,866	109,479
	2 mos.	203	1,829,360	103,231	2,025,585	325,010	228,513	38,387	483,407	1,151,850	56.9	873,735	513,893	284,706	221,153
Southern Pacific	Feb.	8,129	28,916,769	2,824,012	33,752,378	4,448,592	7,504,407	754,134	13,671,670	28,161,752	83.4	5,590,626	3,328,573	1,247,493	1,064,701
	2 mos.	8,129	64,435,681	6,671,029	75,436,645	9,017,613	15,414,866	1,468,658	28,988,165	58,675,256	77.8	16,761,389	9,315,499	5,378,758	1,237,829
Texas & New Orleans	Feb.	4,315	8,690,987	692,325	10,024,000	1,757,359	1,684,934	235,631	3,970,526	8,177,503	81.6	1,846,497	841,527	406,279	485,001
	2 mos.	4,316	19,250,993	1,647,171	22,296,280	3,684,389	3,301,519	463,751	8,384,946	16,890,134	75.8	5,406,146	2,480,970	1,672,926	1,583,615
Spokane International	Feb.	152	129,718	930	143,944	72,739	22,538	4,581	47,765	155,980	108.4	—12,045	10,152	—35,837	25,618
	2 mos.	152	289,583	1,970	317,365	130,176	40,544	9,580	99,128	297,020	93.6	20,345	21,420	—24,142	—20,935
Spokane, Portland & Seattle	Feb.	931	1,555,925	65,731	1,718,717	355,765	284,044	21,474	618,703	1,355,103	78.9	352,614	176,913	130,126	203,404
	2 mos.	931	3,578,275	152,495	3,959,290	685,544	525,209	49,191	1,332,420	2,753,773	69.6	1,205,512	353,030	730,235	141,004
Tennessee Central	Feb.	286	346,172	23,037	387,788	85,949	68,363	10,426	137,412	319,904	82.5	67,884	20,952	9,205	—10,809
	2 mos.	286	758,393	41,139	843,224	171,657	136,586	20,209	284,264	650,702	77.2	192,522	48,531	65,102	49,070
Texas & Northern	Feb.	8	76,094	.....	87,928	5,948	10,046	966	28,184	49,972	56.8	37,956	12,912	13,225	7,252
	2 mos.	8	182,401	.....	206,560	17,395	18,152	2,278	56,724	103,295	50.0	103,265	32,037	45,465	17,935
Texas & Pacific	Feb.	1,846	4,794,839	331,578	5,554,132	758,273	806,846	151,649	1,852,175	3,841,197	69.2	1,712,935	695,613	633,871	580,007
	2 mos.	1,846	10,204,125	834,586	11,968,616	1,578,814	1,768,932	320,550	4,053,429	8,325,454	69.6	3,642,152	1,549,110	1,332,429	1,198,393
Texas Mexican	Feb.	162	191,780	.....	212,358	53,879	26,245	6,138	51,708	153,838	72.4	58,520	19,258	19,080	55,781
	2 mos.	162	445,900	.....	494,814	117,209	51,724	12,501	122,302	337,331	68.2	157,483	59,076	58,608	114,414
Toledo, Peoria & Western	Feb.	239	705,371	2	712,468	57,087	37,205	45,033	160,905	333,008	46.7	379,450	191,817	114,665	53,459
	2 mos.	239	1,253,518	2	1,266,699	118,866	68,308	88,528	291,295	630,232	49.7	636,467	324,122	188,422	136,259
Union Pacific	Feb.	9,720	28,777,772	2,296,934	33,223,847	4,152,946	7,413,279	781,806	13,017,310	27,296,454	82.2	5,927,393	4,387,456	544,857	972,797
	2 mos.	9,720	62,547,703	5,159,676	72,439,796	8,105,520	15,087,043	1,711,119	26,914,952	55,835,060	77.1	16,604,736	11,296,668	3,181,949	1,574,482
Utah	Feb.	110	76,120	.....	76,437	15,816	50,015	831	45,294	119,493	156.3	—43,056	11,115	—45,671	—69,117
	2 mos.	110	211,083	.....	212,064	30,735	104,031	1,597	111,615	262,776	123.9	—50,712	22,482	—59,452	—90,893
Virginian	Feb.	643	2,991,838	2,021	3,099,894	367,626	718,210	39,323	737,200	1,938,543	62.5	1,161,351	710,000	647,833	—214,354
	2 mos.	643	6,579,777	4,315	6,789,627	738,507	1,460,384	80,943	1,543,371	3,996,203	58.9	2,793,424	1,812,000	1,407,210	267,693
Wabash	Feb.	2,393	7,236,714	367,831	8,215,604	973,587	1,119,161	250,134	3,611,109	6,204,976	75.5	2,010,628	821,412	598,011	532,141
	2 mos.	2,393	15,791,402	867,524	17,956,027	2,033,527	2,370,798	524,792	7,552,646	13,100,872	73.0	4,855,155	2,075,478	1,630,801	986,600
Ann Arbor	Feb.	294	744,520	.....	749,677	72,117	104,964	22,807	296,605	511,150	68.2	238,527	116,932	100,204	56,308
	2 mos.	294	1,475,339	.....	1,486,712	151,790	205,510	46,932	627,249	1,064,666	71.6	422,046	204,985	164,931	156,183
Western Maryland	Feb.	837	3,601,361	6,570	3,781,508	507,112	764,645	76,687	1,219,136	2,713,383	71.8	1,068,125	646,000	638,113	195,371
	2 mos.	837	7,743,032	15,197	8,100,552	1,016,530	1,550,533	152,708	2,565,691	5,597,101	69.1	2,503,451	1,488,000	1,442,816	558,696
Western Pacific	Feb.	1,193	3,673,279	186,584	3,931,213	530,753	607,733	159,600	1,104,705	2,606,484	66.3	1,324,729	544,917	717,831	404,390
	2 mos.	1,193	7,887,388	401,581	8,448,527	1,014,828	1,211,496	357,293	2,400,287	5,397,904	63.9	3,050,623	1,345,004	1,558,446	699,929
Wisconsin Central	Feb.	1,051	1,869,904	26,628	1,984,204	268,732	576,005	60,955	1,019,574	2,014,703	101.5	—30,499	133,245	—354,393	75,130
	2 mos.	1,051	4,150,712	62,502	4,424,347	537,897	1,092,203	124,048	2,125,210	4,062,281	91.8	362,066	346,367	—327,568	89,849

* Total operating revenues for this company for the full year 1950 were $62,525,910. In *Railway Age* of February 26, page 78, they were incorrectly reported as $68,525,910.



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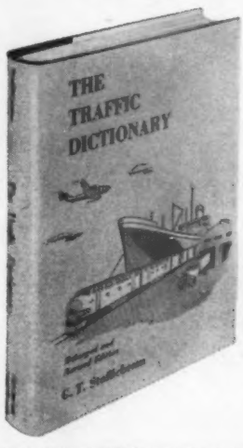

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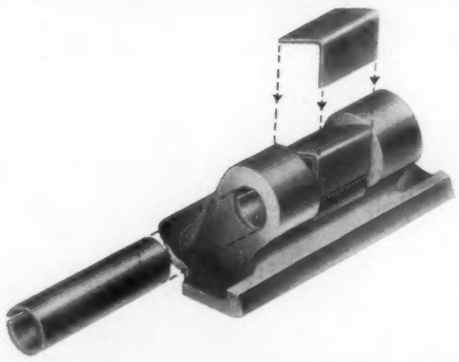

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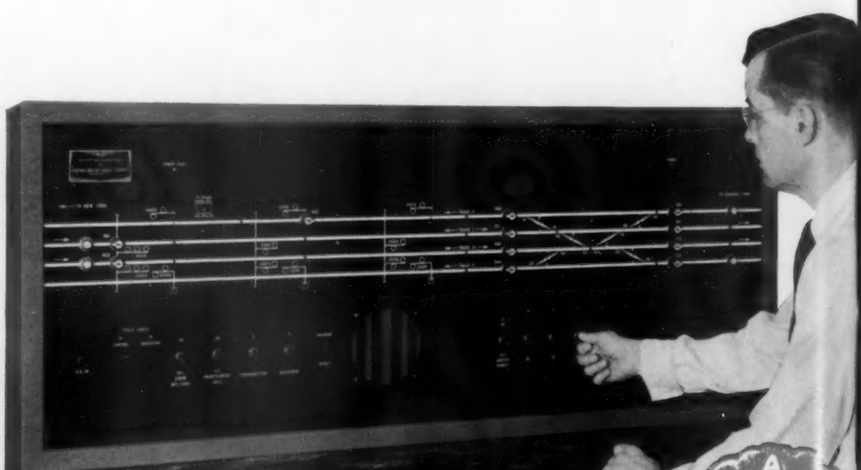

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